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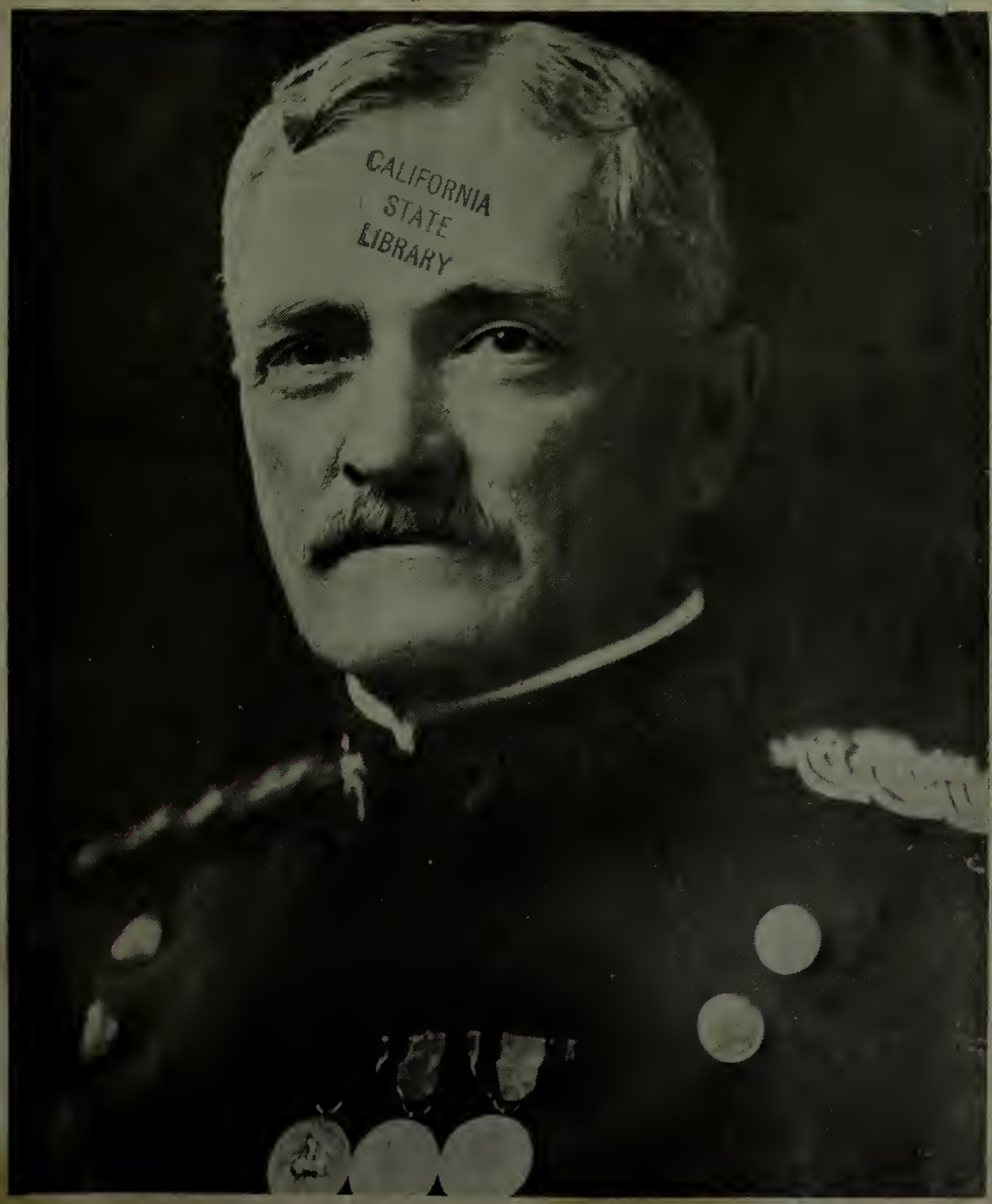
January, 1918 A Year of Patriotic Sacrifice 5c Per Copy

ORCHARD and FARM

ESTABLISHED 1888



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—International Film Photo.

General John J. Pershing

REO

"THE GOLD STANDARD OF VALUES"

This Reo Six Is a Light Six But It Is Also a Sturdy Car

THE TERM "LIGHT" as so frequently used in speaking of motor cars, is a relative term only.

IT MAY MEAN MUCH—or nothing. Depending on whether the reader knows all the factors that enter in.

THIS REO SIX IS LIGHT—just as light as sound engineering will permit.

AND IT MAY SURPRISE YOU to know that—not in the "ads," but on the scales—this Reo Six is as light as many, and actually lighter than some, whose claims to lightness are their chief recommendation.

WE REO FOLK have never talked much about lightness—because that quality in itself is proof of nothing, and yet, as we've said, we make Reos just as light as may be, by the use of the best materials known to the art—as light as may be compatible with the safety factor we desire.

WE LAY MORE STRESS in our advertisements on the staying qualities of the Reo product and the consequent low upkeep.

BECAUSE THAT REALLY COUNTS—those are the qualities the buyer most desires and seeks in the car he buys.

WE DO NOT SACRIFICE endurance for an immediate effect—either in our sales talk or in our designing.

REO ENGINEERING is admittedly sound—it is the standard by which other engineering is compared by those who know.

AND SO WE DESIGN each part of a Reo with an eye single to long time service. Doing that, we automatically obtain low upkeep.

SO, AS WE'VE SAID, this Reo Six is light, using the term relatively—but more important, it is sturdily built.

PUT IT ON THE SCALES—then weigh other cars of similar power and wheel base and size, and you'll agree this is indeed a Light Six.

AND WHILE YOU'RE at it, examine carefully the size of the various parts, especially bearings and the shafts that carry the load and take the driving strains—and you will find other arguments why, at the same price, you should select a Reo Six for yours.

THE SAFETY FACTOR in a Reo is greater than that in any other make of car—save one. And that other is also, in its special class, the world's best car.

STRANGELY ENOUGH, the real proof of "lightness" is not to be found on the scales alone—but in the tire mileage.

SOME CARS are so flimsily made and some others so poorly designed that they are practically dead weight on the tires. Result, excessive tire wear and expense.

ASK ANY REO OWNER of any Reo model about his tire mileage, and his reply will convince you that the Reo is the "Lightest" Six made.

SUPPLY IS LIMITED—we cannot hope to supply all who will want this Reo Six.

SO ONLY WAY is to see your Reo dealer at once, place your order and secure an early delivery date before his limited quota is disposed of.

TODAY won't be a minute too soon.

Reo Motor Car Company, Lansing, Michigan

Price is f. o. b. Lansing and the special Federal tax must be added.

ORCHARD and FARM

Vol. XXX. LOS ANGELES, CALIFORNIA, JANUARY, 1918. No. 1.

Prepare for a Year of Patriotic Sacrifice

Produce All the Food You Can—Waste None of It

THIS new year of 1918 is going to be a year of sacrifice and we must prepare for that sacrifice. We are sending our soldier boys away with brave smiles on our faces, but there are tears lurking in those smiles. We know what their going to France means and they know it, too. They are going down into the hell of the trenches, while we sit at home and read about their exploits, praying, perhaps, but taking no real part.

When such men as William Howard Taft and Henry Morganthau warn us that the great war may last three or four years and require millions of men, billions and billions of dollars and enormous food supplies, why should we hold so fondly to the hope that it may end in a month or two?

Our President's grim declaration that there can be no peace until Germany is ready to make full reparation for the cruel wrongs she has inflicted upon Belgium and France makes the end of the war seem far away to those who know what German pride and German resentment of dictation of any sort means in this day when the Teutonic peoples are being bolstered up in the foolish belief that, despite all their terrible losses, they actually have won their way thus far and have England, France and America on their knees.

What is the manifest duty of our producers?

It would seem that all they would need to know is that the production of wheat in France has fallen over 50 per cent since 1913 and that there is fear of famine in that noble land, the historic friend of America.

But there are other desperate facts to consider.

Since its occupation of northern France, Germany has seized about 2,700,000 French and Belgian cattle. By these depredations and by restrictive measures at home, Germany has maintained practically all her original share of cattle.

In all foodstuffs, including cereals, potatoes and beet roots the production of France has decreased from 35,800,000,000 pounds in 1913 to only 22,200,000 in 1917.

The French sugar beet crop is short 68 per cent or 148,000,000 bushels, and there is crying need for sugar in that country.

England is a little better off. The despot has not set his heel upon her shore and she has Canada to back her up—a nation that has responded nobly to the call for greater production. While all over our land there has been a reduction in livestock, Canada has increased its milk cows 13 per cent, its hogs 4 per cent and its horses 47 per cent.

True we have enormously increased our yields of corn and potatoes and this will help, but we must keep increasing and increasing in every line of agriculture to keep up with the greatly augmented demands of our own army and navy and those of our allies.

Every farmer must remember that food in the mouths of our allies is ammunition no less important than the shells in their siege guns.

He should remember that he has not only to help repair the food losses of the allies, but to help make good the failure of other countries, such neutrals as Spain, Switzerland, Holland, Denmark, Norway and Sweden, to provide our battling brother nations with the usual shipments of comestibles. This decrease amounts to over 200,000 tons as compared with the year before the war.

In poor, miserable, craven Russia the decrease is nearly 300,000 tons as compared with last year and 359,000 tons as compared with 1916.

These figures are taken from Government reports.

All this bespeaks a food loss which the United States must supply.

We talked about tilling the idle acres last year, but we must not only talk about it this year—we must till them. We must see to it that our soldiers and their brother soldiers of France and England are fed and fed bountifully.

It is going to be hard work for many of those farmers who have sent their sons to the war and have not help enough now in this time of food emergency, but if they have to labor a little harder and put in longer hours they must remember that their sacrifice is as nothing compared with that of their brave boys.

Farmers, in this new year of 1918, do not let anybody persuade you that you should not do your utmost to increase the food supply.

They may tell you that the war cannot last six months. Do not believe them. Even if it lasted but that time you would be reasonably sure of a market for all you can produce, for it is going to be practically impossible for our allies to increase their food production this year, save in Canada and Australia, and such increase will have little effect upon prices, so enormous will be the demand upon the home markets of Europe.

Do not let your livestock run down. Do not let your poultry yards be depleted.

If your slogan last year was "Plant, plant, plant!" let it be your slogan this year as well.

Study intensive methods, fertilize your poor soil, plow deep, cultivate often, harvest economically and leave the rest to God who surely will bless your labors.

"WE MUST WIN THE WAR."—*President Woodrow Wilson.*

From the President's recent message:

LET there be no misunderstanding. Our present and immediate task is to win the war, and nothing shall turn us aside from it until it is accomplished.

Every power and resource we possess, whether of men, of money or of materials, is being devoted and will continue to be devoted to that purpose until it is achieved.

Those who desire to bring peace about before that purpose is achieved, I counsel to carry their advice elsewhere. We will not entertain it.

Terms upon which peace may come.

We shall regard the war as won only when the German people say to us, through properly accredited representatives, that they are ready to agree to a settlement based upon justice and the reparation of the wrongs their rulers have done.

They have done a wrong to Belgium which must be repaired. They have established a power over other lands and peoples than their own—over the great empire of Austria-Hungary, over hitherto free Balkan states, over Turkey and within Asia—which must be relinquished.

How to Grow a Profitable Crop of Cauliflower

Practice of J. N. Teague, Largest Grower in California

By Bailey Millard

IMAGINE 275 acres of cauliflowers growing in one great field and many of the plants standing waist high!

That's some cauliflower bed, isn't it?

Comes pretty near being the largest in the whole country. It is certainly the largest on this coast, and its product is the largest, too.

Think of 275 carloads, an average of one car to the acre, being shipped from such a ranch in a single season!

That was the record made last year, and this year it will be about the same, though the rain did not come quite early enough for ideal crop conditions.

The cauliflower ranch that makes this record is that of J. N. Teague and is within the corporate limits of the city of Los Angeles, down in the southeastern corner of what some people call "the rhubarbs."

Mr. Teague is a patriot. Since this country entered the war he not only has bent every effort toward food producton, but two of his sons are in that great and glorious army which is to win the world for democracy.

Not only does he grow cauliflower by the hundreds of carloads, but he grows potatoes, corn, barley and oat hay and alfalfa. His is intensive farming of the most intensive sort. It would hardly be possible to get more in the way of food and feed products from a piece of ground anywhere than Mr. Teague is getting. As soon as the potatoes or corn are harvested, in go the cauliflower plants and he keeps up this rotation of crops all the time.

His Vegetables Go Everywhere

Mr. Teague has found it profitable to grow early, middle and late varieties of cauliflower. His season begins along in October and ends in May, and he is able to keep shipping every little while. His big, tender, succulent vegetables go to nearly every large city in the United States beyond the Rockies.

Growing cauliflowers on such a tremendous scale, Mr. Teague is able to produce them very cheaply, and yet he keeps a good-sized gang of Mexican laborers at work, at $2.50 a day, most of the time and feeds about sixteen horses and mules. One would say at first glance that with so many teams to feed there would be little in the game, but the ranch raises most of its own feed and is thus practically self-supporting in that line.

Of the 275 acres of cauliflower, Mr. Teague cultivates 150 acres himself, the rest being handled by Chinese tenants. When seen last month the ranch was one sea of green, the plants standing at various heights, according to the time of their setting out. There were little plants that had been placed in the ground only the day before, and there were big plants about three feet high, with other sizes in other plots.

He Has the Right Soil

The soil of the ranch is a light sandy loam—ideal for cauliflower culture, as these vegetables do not thrive very well in heavy soil. The Teague loam works up as fine as corn meal and is easily plowed and cultivated to a considerable depth.

One reason why so many ranchers have been disappointed in their efforts to raise this plant, always in such good demand, is that they not only have not had the right kind of soil but they have not handled what they had properly.

When I asked Mr. Teague what he considered the chief elements of his very conspicuous success in this field of husbandry he replied:

"Sandy loam, hard work and plenty of barnyard."

He is fortunate as to fertilizer, for there are dairies in his neighborhood, and the manure does not have to be hauled any great distance.

Mr. Teague's Methods

The Teague practice in growing cauliflowers is as follows:

After the summer feed crop of corn or potatoes is taken off, the ground is well plowed and harrowed, after which the young plants are set in deep trenches, the rows being 34 inches apart and the distance between the plants in the rows being from 22 to 24 inches. This gives about 7000 plants to the acre, of which about 4000 come to good maturity, the others being culls or headless.

The Culls Go to the Pickle Factories

Mr. Teague is not only a patriot, he is a humane man. Planting cauliflowers is a backbreaking job. At this task he works his men only three hours a day, the rest of the time being devoted to less arduous labor. There are cold-blooded farmers whose aim in employing men seems to be to kill them, and there is a small percentage of employers who take a grim delight in seeing a man disabled for further work because of the heavy tasks they set them. The delight comes from the gloating fancy that they have gotten out of a man all there is in him and that they have had their money's worth. This is not only brutal, but, like most brutal practices, it is utterly mistaken. If you treat hired help right you can get more out of them than if you overload them with labor.

Irrigation and Cultivation

Then, too, there is another object to be gained by planting three hours a day instead of eight or ten. If young cauliflower plants are set out from 3 to 6 p. m. they get the benefit of the cool evening and of the dark night during a period when they need protection from the hot sunshine

After the plants are set in the trenches, water is run along beside them. The trenches are kept open for about ten days, when they are again filled with water. Three or four days after this second irrigation the soil is plowed back into the trenches and around the plants. This leaves an open irrigating trench all the way along between the rows for use as a further water course.

According to conditions, from three to eight irrigations are afterward given the plants, and after a few cultivations they are ready to gather.

By planting in the afternoon there is a very small loss due to wilting—not more than 5 per cent.

For shipment vegetable crates are packed with cauliflower heads, generally two dozen or more in a crate. If the heads are very small sometimes there are as many as 40 heads in a single crate, but the buyers allow only two dozen, no matter what the number.

A good average price is 50 cents a dozen, so that, counting 350 dozen to the acre, the receipts at that rate are $175 an acre. There is always a good net profit in cauliflower culture where other crops precede it, as in the case of Mr Teague's ranch Insect pests do not give much trouble, but a season of little rain is an unfavorable one, for no matter how much root irrigation is done the plants need to have water directed into their centers by the long trough-shaped leaves

Home of Cauliflower

It is a good branch of vegetable culture and doubtless more ranchers would engage in it if it were not for the fact that the cauliflower, unlike the cabbage, is tender It requires a warm winter and resents heat which a cabbage will endure.

Many failures have been made by persons who thought they saw big money in cauliflowers, but who did not know how they should be grown The general mistake is an insufficient or intermittent moisture supply. There is also the common error of starting the plants at the wrong time. This is not so much to be feared in Southern California as in other localities, but at its best cauliflower culture is a little risky and requires close and careful attention

Still, though it is rather tender and exacting in its treatment and rebellious under neglect, it is not difficult for a careful person—one who follows closely such excellent practice as that of Mr. Teague—to grow magnificent speciments of the plant in California, the true home of the cauliflower.

Give Your Cabbage Plenty of Moisture

That Is the Practice of All Successful Growers.

SHORTAGE of rain has resulted in some of the cabbage fields on this coast not being up to normal in appearance or yield. Still one sees here and there a thrifty field of cabbages, and when asked why his plants look better than those of his neighbors the successful grower will invariably say, "I irrigate them oftener than they do."

That is not the whole secret of successful cabbage culture, however. There is no plant in the world that responds so readily to soil stirring as the cabbage. This in California helps to rapid growth during the winter, which gives the plant an advantage over aphis or lice which often get the better of unthrifty plants. Slow growth in winter is bad for late-planted cabbages, for they are always likely to get hot, dry weather after the winter rains.

So if the rainfall is scanty in your section run on all the artificial moisture you can, and in this way make up for the deficiency, and remember that frequent cultivation means almost as much as irrigation.

The illustration is that of a fine cabbage field in the San Joaquin Valley, but it could be equalled anywhere along the coast close to the ocean, where there is a great deal of fog and the sun is often obsured. In fact, such conditions are very favorable to cabbage growth.

January is a good time to plant late cabbages in California, if they have been started in August or September When placed in the field they are usually planted in rows two and a half to three feet apart, the plants being set about fifteen inches apart in the rows. Planting is done with a dibble, and a man can plant 4000 to 6000 a day if he has a boy to drop plants for him. The earth should be pressed firmly about the roots.

If irrigated ground is well soaked before planting to cabbages the grower may wait a while for rain, but if it does not come in a short time he had better give his ground another irrigation, for, as was said before, the cabbage is a plant that requires plenty of moisture.

It is to be hoped that the growers will fare better this season than last, when not a few of them found it difficult to dispose of their crops to advantage.

What the Tractor Actually Saves on the Ranch

Field Experiences of California Farmers

By Burton Hale.

TO SECURE data showing exactly how the tractor cuts the cost of clearing, cultivating and other farm processes is not an easy matter. Most farmers keep no records of the expenses of their various operations, and some of them who do so seem loth to impart such information.

For some months, however, I have been making inquiries along this line and am now able to give some idea of the saving wrought by the use of the tractor, as against team-hauled farm machinery.

Let us begin with the experiences of Frank L. Lieb, a young college man at Wayne Station, northeast of San Jose, Cal. Mr. Lieb is applying the same common sense business principles to his ranch operations that modern merchants, contractors and others do to theirs. He keeps a complete set of cost accounts and knows precisely what his tractor is doing by way of saving money on his place.

Mr. Lieb can tell in an instant how much any job that has been completed has cost for tractor operation, fuel, grease, oil, repairs, labor and miscellaneous equipment.

A Ninety Per cent Saving

Thus one day he found that with a team it was costing him $12 an acre to do a certain piece of plowing close up to his walnut trees, because of the dense growth of cover crop and weeds that had been allowed to accumulate. The plow was always filling up, striking roots, and the horses were worked so hard they had to be rested frequently and could not stand the full day's grind at that sort of work. He substituted a tractor for the horses on the same job and found his cost per acre dropped to 95 cents.

Lieb's daybook consists of a large page for each day to a page on which there is plenty of room to designate all the different jobs which might be done on each day such as plowing, cultivating, disking, dragging and furrowing for irrigation, hauling and pumping. This [illegible] labor with hand tools also.

After each job is completed he [illegible] according to the amount of fertilizer, oil and grease used, hours at work and area covered.

This gives him a cost per acre. As his records date back more than two years, he has a comparative record to look at in ascertaining the increased cost of production over the preceding season. Accurate records are always kept of his crop production, quantity and prices obtained. Each season's work and results are then balanced. Thus he knows to a penny what the ranch is producing.

Cutting the cost of plowing from $12 to 95 cents an acre or over 90 per cent, was probably the best record made by Mr. Lieb, but there were many others that were quite notable.

I have not the space in this article to tell all that Mr. Lieb has done with his tractor by way of reducing farm expenses, but suffice it to say that the saving has been considerable.

In the Imperial Valley

Good reports have been received of late as to the practical use of the tractor in the Imperial Valley. Edgar Brothers of Imperial have been using a 16-inch sulky plow in Bermuda or sod grass handled by a five horsepower tractor and have found it economical and quite effective in operation.

Ward Brothers of Brawley mowed more hay with their tractor than they could have cut with six mules. On account of the heat it often takes three teams, working alternately to run one mower, but in cutting 500 acres of alfalfa it was found that one tractor would do more work with a six-foot mower than three five-foot mowers could when hauled by teams. This spells a considerable saving.

The big hemp crop of the Timken Ranch Company of El Centro was handled by tractors, and though because of the newness of hemp-growing there was hardly any basis of comparison, it was figured that tractor work in this case as in many others was more economical than team work and far more satisfactory in the matter of speed and thoroughness.

One rancher puts it this way:

"The past summer was a very hot one. Many of our neighbors could not plow because it was too hot, but our tractor did not mind the heat a bit.

"As far as the expense of operating is concerned, our tractor does not cost us as much as it would cost to feed six horses the same length of time that we are using the tractor, and then when it is idle, it doesn't cost a cent."

"With two tractors and four men," says L. Weinzheimer, manager of the Pioneer Plantation of Hawaii, "we are doing the same work that formerly required forty mules and twenty men, and we are doing the work more safely and more quickly."

Most of the Hawaiian sugar planters are using tractors and some of them are figuring out a saving of from 20 to 50 per cent.

In Oregon the tractor is beginning to make its way to an extent that was hardly dreamed of a few years ago. In the vicinity of Ione in that State three tractors worked more than 10,000 acres of land last spring.

Some of the Oregon tractor operators figure their savings at 30 per cent, others even more.

Figures from Yolo County

The actual saving in daily work of ten horses and five men has been effected by Wayne Jacobs of Zamora, Yolo county, Cal., during the past season. Mr. Jacobs did this with a forty-five horsepower tractor and a device of his own arrangement.

A combination of seeders, fastened to a huge bar extending either way from the tractor, served to allow him to seed a strip eightysix feet in width across a field. His progress was at the rate of a little over two miles per hour and the average performance of the device was 175 acres per day. By actual measurement Jacobs seeded and finished 315 acres in twenty-three hours.

Two wagons were attached to the outer end of the draw bar on either side and these carried ninety sacks of seed grain.

This season he has sown over 600 acres on his own ranch and the neighbors are demanding that he save them the trouble, time, toil and expense. He is arranging to enlarge the capacity of the device so that he can handle 350 acres per day.

Next year he expects to harvest one of the heaviest crops in the county.

Another farmer in Central California says of his tractor and what it saved him:

"I tended a farm this last year of 370 acres with six head of horses and my 8-16 horsepower tractor, except that I hired a team for twenty days in plowing. The tractor replaced five head of horses which I had the year before when I farmed 20 acres less."

As a time saver the tractor is immense. I have the testimony of one farmer who says that in four days he plowed with his tractor a field that it had formerly taken two weeks to furrow with his mules.

Cutting Down Clearing Cost

Four dollars an acre was all it cost the San Juan Farm Lands Company near Mustang Spring, Ariz., to clear, plow and seed an immense tract of land. The company has 5120 acres in the heart of the Mustang Mesa. It prepared two massive beams in the shape of a huge V. The device worked very well, but where it slipped over the ground the operators used a gang of disc plows.

The engine was able to pull three such gangs of six plows each and so the sage-brush was sent flying. The company used the tractor to pull up cedar trees and for other purposes. The ground to be planted was plowed, double-disked and harrowed all in one process, and the clearing, plowing, disking and seeding cost about $4 an acre. At the least calculation it would have cost $6 to $8 an acre had horses or mules been used.

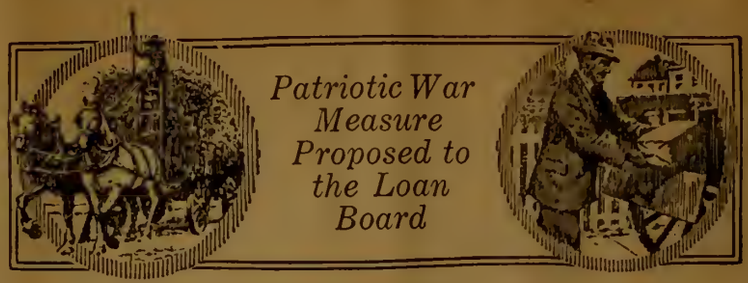
C. G. Wilbur, a Salida, Stanislaus

(Continued on Page 31)

You Can Do a Lot of Mowing in a Day This Way, and Your Horse Won't Get Tired or Overheated.

And as for Dragging, What a Lot of Land You Can Cover With This Outfit!

How to Capitalize the New Farmer on This Coast



By Bailey Millard.

IT MUST be apparent to all who have studied agrarian conditions in California, and throughout the Pacific Coast, that the undercapitalization is the cause of the farmer who is trying to make a start in this part of the country.

For some time I have been urging in public print a limbering up of the Federal Land Bank system by which loans may be obtained from the Government without the long strings of red tape that have tied up Uncle Sam's money bags and kept the farmer from enjoying the credit so easily obtained by other business men.

The Farm Loan Act was intended to finance the farmer. It simply hasn't done anything of the kind. Only here and there have the tillers of the soil benefited by it. Complaints are being sent to me every little while of the delay in the Land Bank procedure in this respect—of unsatisfactory appraisements, of loan refusals on slight grounds and a general failure on the part of the Government's plan to meet the needs of the hour by encouraging food production by an efficient system of credit to farmers.

To be sure, affairs are going better for loan-seekers than when the Berkeley Land Bank was managed by Burnell G. White, but there is room for improvement. Under the present Federal system of loaning money it is difficult to meet the crying needs of the husbandman. For this reason the following letter has been sent to Mr. Herbert Quick of the Federal Farm Loan Board at Washington with a view to suggesting a remedy for the present unsatisfactory state of affairs:

A Suggestion to the Loan Board

Office of Orchard and Farm,
Los Angeles, Nov. 20, 1917.

Mr. Herbert Quick, .
Federal Farm Loan Board,
Washington, D. C.

Dear Mr. Quick:

I want to set before you a plan for the utilization of the Federal Farm Loan Bank in order to get under immediate cultivation a large area of land which is now producing nothing, and which may be made not only permanently but largely productive.

The plan I shall describe to you in local terms, but it is not a local plan. It can be applied in any State or any locality where there is land to be developed into productiveness. But it can be STARTED here in California. Here is the idea:

We will take, for example, some 65,000 acres of land in the north end of the Imperial Valley. This land is checkerboarded—alternate sections—with farms which are amazingly productive in food crops. It has towns, railroads, marketing and shipping facilities. There is ample water available in canals already constructed. All it lacks is farmers, experienced capable men, properly equipped and financed, to produce simply unbelievable yields in alfalfa, kafir corn, cotton, and in hogs and fat cattle.

How to Help the Farmer

Of this land some 47,000 acres belongs to a syndicate. Like a lot of other concerns in California, this syndicate was constructed to take a profit, but not to stand a loss. It bought this land from the Southern Pacific railroad expecting to make a "quick turn" and sell to settlers. The syndicate is behind in its installment to the Southern Pacific railway. The necessary water rights are represented by shares of stock in an irrigating company. Because these shares have not been promptly sold the company has gone into debt. It has partly discounted, in advance, the $17.50 per acre which it expects to get for its water rights. The land is cheap enough—$65 to $80 per acre—and the water is very cheap at $17.50 per acre, but it is impossible to make the terms of sale easy enough so the average land buyer can meet them and at the same time satisfy the four parties in interest, the land syndicate and its creditor; the water company and its creditor.

If the average emigrant farmer with from $4000 to $7000 bought a quarter section of land, he would find that before he could make it productive it would have to be plowed, then leveled, then replowed, perhaps subsoiled, and that a house, barn and waterworks would have to be built to make it a going concern. Counting the purchase of water rights, the actual expense of taking such a quarter section and getting the first crop would be not less than $50 per acre. That's $4000—as much as he's got—and no margin.

What to Do in Imperial Valley

Now suppose that the Federal Land Bank would make a tentative appraisement of these lands. They run very uniform in quality; the value of one section would be very close to that of another section of the same grade. Suppose the appraisement—informal—helpful—not hostile or hypercritical would be on the basis that the land alone was worth $85 an acre; that the water rights were worth $17.50; that the actual cost of plowing, leveling, replowing and putting the ground in thorough tilth for the first crop was $17.50—so that the place after it was provided with water and put into thorough productive shape would be reasonably sure of an appraisement at $120 per acre.

Suppose it should be informally agreed that if the sum of $2000 were actually expended in putting up a permanent and substantial house, barn and cistern and settler for drinking water, then such improvements would be classed as being worth that much. Suppose, say $5 per acre were added to cover the actual bare cost of advertising and getting settlers—for that really is an addition to the value of the land. That would make 160 acres at $125—$20,000. Total possible loan, 50 per cent—$10,000; eighty acres at $125—$10,000. Total possible loan $5000 plus 20 per cent improvements—$400.

How the Plan Would Work Out

Now suppose that, with such a transaction in view, all the parties in interest could be induced to pool their various interests and the capital could be found to make the necessary permanent improvements. We get a good man, experienced, a real farmer, who has $4000. He buys 80 acres, pays down $2000, executes first mortgage to the Government bank for $5400. Under the law, this loan can be made payable by installments beginning in 5 years and running to 40 years. We have these figures:

Land	$10,000
Improvement	2,000
	$12,000
First payment	$ 2,000
Government Loan	5,400
Balance	4,600

Put the balance in a trust deed—second lien—to be paid in installments in 1, 2, 3 and 4 years, $1150 a year. The buyer would be confronted with these charges the first year:

Interest at 5% on $5400	$ 270.00
Interest at 7% on $4600	322.00
Installment, second lien	1150.00
	$1742.00

Buyer Would Have Capital Left

This is at the rate of $21.77 per acre per annum. Water, taxes and other charges would bring it up probably to $25 an acre per annum. Ten dollars per acre per annum would provide for the man's living, so that a net production of $35 per acre would meet his needs. And please remember that we move this settler upon a farm that is all plowed, leveled, replowed, and has a good house on it—a going concern, in a climate which produces crops all the year around. An estimate of $75 per acre gross annual production at average prices for the last five years for lands in this locality, well farmed and placed in good condition is conservative. Remember, too, that we propose to leave the buyer some $2000 in working capital.

So far as the sellers are concerned they would get in cash the proceeds of the mortgage and the first payment. Deducting selling costs, they would have $7000 in cash on 80 acres, which would pay the cost of improvements and leave enough to satisfy all debts. Their profit on the transaction would be represented by second lien paper, upon which a bank would probably loan them 60 per cent of its face value. That would give them nearly 80 per cent of the whole improved value, in net cash.

Idle Lands of the State

I took the Imperial Valley because it was an easy instance. A rather reliable estimate of the amount of land lying in California south of Fresno, for which water can either be produced or secured, and which can be put under thorough tilth, and water provided so as to make it very permanently productive, is 185,000 acres.

This is land which can be handled "immediately," on very short notice, either under canals already constructed, or for which water can be produced by pumping plants which tap sources known to be permanent and reliable—charted by the United States geological survey. It would take $60 per acre, or less, more of it much less, to develop this land and make it ready for the hands of the farmers. The completed value, land, plowing, leveling, ditching, etc., etc, would range from $125 to $200 per acre. There is probably as much more land coming under the same general description lying north of Fresno in California, or in all over 350,000 acres in this State.

A man who has had much experience in connection with the immigration work of one of the railroad companies tells me that in Idaho, Wyoming, Colorado, Utah, New Mexico and Arizona there is hardly less than half a million acres of land already irrigated or very readily irrigable which is lying idle because under existing conditions the farmers cannot meet the terms. No private concern can make 40 years' terms of payment. Only the Federal Land Bank.

Cure of Agrarian Movements

As to a general plan of operation—the idea would be about like this: To steer clear of State officers or boards or politicians, to interest a group of citizens of high character in taking up this line of effort, first and foremost because of the patriotic help it would be to the United States; second because of the advantage to the whole community in building up the waste places. You may see that even with all help possible under the law, very large sums of money would have to be provided to prepare the land for settlers. That would have to be done through local banks. The informal or tentative appraisal feature would

(Continued on Page 29)

The Man Behind the Plow.

By S. E. K.

THEY sing about the glorics of
the man behind the gun,
And the books are full of
stories of the wonders he has
done;
There's something sort o' thrillin' in
the flag that's wavin' high.
And it makes you want to holler
when the boys go marchin' by;
But when the shoutin's over and the
fightin's done, somehow
We find we're still dependin' on
the man behind the plow.
In the halls where jewels glitter and
shouting men debate;
In places where the rulers deal out
their honors great,
There is not a single person who'd
be doin' business now,
Or have medals, if it wasn't for
the man behind the plow.
We're a-showin' all creation how the
world's affairs should run;
Future men'll gaze in wonder at
the things that we have done,
And they'll overlook the feller, just
the same as they do now,
Who's the whole concern's foundation that's the man behind
the plow.

From Carp to Cattle

Reclaimed Sacramento Valley Land.

THE illustrations accompanying this article represent one of the finest herds of Holsteins in the State of California standing in their own alfalfa pasture. Fine stock in an out-of-doors State like California is of sufficient interest in itself to justify some attention from the man with the camera. In this case, however, interest in the Holsteins is only incidental. The picture was taken to illustrate one of the results of intelligent reclamation.

The land from which these Holsteins are getting the nourishment that enables them to repay their owner for his kindness by making him rich, was good fishing ground only a few years ago.

It is part of Natomas Reclamation District, adjoining the city of Sacramento and now counted among the most fertile sections of a rich State.

No More Fishing

Three years ago the small boys of Sacramento speared carp where the Holsteins and pigs are now reveling in well-fed security.

The story of the Natomas Reclamation project is part of the development history of California and there is no need to repeat it here.

Of special interest now is the fact that this work, conceived and carried out by some of the biggest men in the State, gave to California at a time when the safety of the country demanded a vast increase in the production of things to eat, more than 60,000 acres of the richest land in the world.

Most of the Natomas land saved from the river is covered to a great depth with river silt—the same kind of soil that made the delta of the Nile such a horticultural wonder.

Farming Near the City

The work of reclamation cost a vast sum, but the crops raised on the redeemed land have brought the growers more money than the reclamation cost. The reclamation work not only added substantially to the State's producing area but it gave the farmers of the State an unusual opportunity to combine the recreations and advantages of city life with their rural activity.

Natomas lands adjoin the city of Sacramento. Good roads bring the Natomas farm within a few minutes' ride of the State capital with its fine stores, splendid schools, magnificent parks and other social advantages.

A Banker Dairyman

The pictures reproduced with this article were taken on the Natomas ranch of Fred W. Kiesel, cashier of the California National Bank of Sacramento. Kiesel, a successful banker in daily attendance at his Sacramento office, is also a successful farmer and is in just as close touch with his lands and stock as with the stocks and bonds of his banking business. Kiesel sells his whole milk direct to the consumer and finds his entire market among the 80,000 people that make up Sacramento's population.

Great crops of grain and beans were raised [illegible] year on Natomas [illegible] farm of [illegible] there was [illegible] enough wheat to make bread to last 400,000 soldiers for a year. The bean crops produced as high as 39 sacks an acre.

Of the $2,000,000 worth of these lands already sold the greater portion was bought by Sacramento Valley farmers.

Most of the purchasers had worked Natomas land on leases and knew exactly what they were buying.

Irrigation and Drainage

An irrigation and drainage system has been completed which will give the Natomas farmer complete control of the problem of moisture. The irrigation system draws its water supply from the Sacramento river, the fourth largest navigable stream in the country.

The river is an important transportation factor. It skirts the Natomas lands and good roads give all Natomas farms access to the river landings which have been established at numerous points along the levee.

Eleven railroads, all within easy haul of Natomas lands, radiate from Sacramento so that the Natomas lands enjoy a better transportation system than many large cities. Sacramento is the transportation center for Northern California. Natomas lands adjoin Sacramento.

Fat Holsteins and Hogs on the Natomas Lands, Where the Boys Used to Go A-Fishing.

The Reclamation of This Land Illustrates Vividly What May Be Done With the Low, Soggy River Bottoms of the Coast. There Are Millions of Acres of Such Land Along the Lakes and Rivers. It Behooves Idle Capital to Get Busy With Them.

How to Build Silos

Some Practical Suggestions

BELIEVING that the feeding of silage made from sorghums increases the yield of a California dairy herd from 10 to 25 per cent, as compared with feeding merely alfalfa and grain, and believing silage of great value in feeding other livestock, the University of California is actively encouraging the erection of silos throughout the State.

A pamphlet telling in simple and practical fashion just how to build a wood-hoop silo has been written by J. B. Davidson, professor of agricultural engineering, and J. E. Stiles, assistant in agricultural extension in the University of California, and published by the university. It may be obtained free by writing to the College of Agriculture at Berkeley, as also a recent pamphlet on "The Silo in California Agriculture," which tells how to use a silo and the advantages of feeding silage.

Cost a Dollar a Ton

The silo that is described, pictured and diagrammed, can be built at a cost of a dollar per ton capacity. The type of silo proposed consists of a concrete foundation, a diagonally-braced hoop frame, and lining of staves of one-inch tongued and grooved lumber. Redwood is recommended as the most durable material, but standard four-inch Douglas fir flooring or good sugar pine are regarded as satisfactory.

The silo should be so built that its wall will be impervious, to exclude the air and retain the moisture of the silage. The interior should be smooth and perpendicular, thus permitting the silage to settle properly. The silo should be strong and rigid, and properly supported with guy-wires, or attached to adjoining buildings, so that it can resist the wind. Silos just such as the University tells how to build are still in use after fifteen years of service.

Free Blue Prints

Blueprints of standard types of all the sorts of farm structures the California farmer finds most practical for California conditions may be obtained free of charge by writing to the Division of Agricultural Extension of the University of California, at Berkeley.

The Food Administration is urging the building of silos on all farms where they can be used practically. It points out the fact that economical feeding always results from the use of silage.

Renew the old, worn kitchen chair

paint the soiled, marred woodwork, and give the rough, unsightly floor a clean, glossy surface. That's the way to make your kitchen a healthful, cheerful, easier place to work. You can do it yourself—you will enjoy doing it because the result will be so satisfying. For your chairs or other furniture or your floors, if you want a natural wood effect, use Sherwin-Williams

FLOORLAC

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Sherwin-Williams Family Paint has a lot of inside uses—on woodwork, shelves, cupboards and all surfaces of soft wood.

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Keep Healthy Hogs

Here Is the Way to Do It.

By F. G. Ashbrook.

Enjoying the Sunshine.

IN DEALING with the diseases of hogs, preventive measures must be most relied upon. The animals must be given dry and well-ventilated quarters, which must be kept clean.

Contrary to common belief, hogs have some habits which raise them above other domestic animals from the standpoint of cleanliness. For example, unless compelled to do so, a hog will not sleep in its own filth.

If a part of the floor of the pen is raised and kept well bedded with straw, while the rest is not, all excrement will be left on the unbedded portion of the floor and the bed itself will be always clean.

In addition to cleanliness close attention should be given to the feed, so that nothing may be fed that will convey the germs of disease, especially tuberculosis, to the herd.

If the hogs are fed milk in any form obtained from cows kept upon the same farm, the cows should be subjected to the tuberculin test. If they run with the dairy cattle of the farm a tuberculin test of all the cattle is none the less desirable. Skim milk or refuse from a public creamery should not be fed to hogs until it has been thoroughly sterilized.

Pure Water, Disinfection

Feeding and drinking places should be clean and the water supply pure. Unless the origin is known to be uncontaminated and there has been no possibility of infection during its course, hogs should not be allowed access to any stream.

Wallows should be drained out and kept filled up as much as possible. At least once a month the quarters should be disinfected with air-slaked lime or a 5 per cent solution of crude carbolic acid.

These precautions will be found valuable aids in the destruction of the various animal parasites, as well as a protection from some more serious troubles.

The advantage of a number of small portable houses, each accommodating a few hogs, rather than one large piggery for the entire herd has been referred to previously.

In districts where cholera is prevalent these are undoubtedly the best shelters. They make it more difficult to carry contagion to all animals in the herd, and the destruction of one of them in case of an outbreak does not entail a great expense. An added advantage is that they may be moved from place to place as needed. While more work is necessary in feeding, the convenience and safety from their use more than offset this disadvantage.

Whenever any animals are brought to the farm, or when animals are brought home from shows or from neighboring farms, they should be kept apart from the rest of the herd for at least three weeks. If they have been exposed to hog cholera or swine plague the diseases will be manifested within this time, and the sick animals can be treated or killed and disposed of at once.

If cholera breaks out in the neighborhood the farmer should maintain a strict quarantine against the infected herds. He should refrain from visits to farms where they are located, and should insist on requiring that his neighbors stay out of his hog lots. Dogs, cats, crows, and buzzards may carry the infection from farm to farm and should be guarded against as far as possible.

Dipping to Destroy Vermin

To free hogs from vermin they should be dipped two or more times at intervals of about two weeks, preferably 15 to 16 days, for lice. Several dippings may be required before complete eradication is accomplished. Do not fail at the same time to clean and disinfect thoroughly the sleeping quarters. Cresol compound (U. S. P.) may be used for dipping and disinfecting.

For dipping, mix in the proportion of 1 gallon to 100 gallons of water, for disinfecting, in the proportion of 3 gallons to 100 gallons of water. Coal-tar stock dips and nicotine stock dips may also be used to treat hogs for lice. For use they are diluted with water in accordance with directions supplied by the manufacturers. Cresol compound, coal-tar dips, and nicotin dips may be purchased at the drug store.

For mange crude petroleum is more effective than the ordinary stock dips. It is also destructive to lice.

The vat may be filled with the oil or half filled with water before the oil is added. If one dipping does not effect a cure the treatment should be repeated in one or two weeks.

Animals treated with crude petroleum should be provided with plenty of shade and water. They should not be dipped in oil in very cold or very warm weather.

Oregon Prune Crop

WHILE there is some variation in the figures representing the prune yield of Oregon during the past year, Orchard and Farm has managed to secure more or less reliable data on the subject.

Blanks were sent by the editor of this paper to A. M. Fanning of Sheridan, Ore., one of the largest prune growers in the Web Foot State, and also to the Portland Chamber of Commerce. The Chamber of Commerce would not venture an estimate of the total crop, but Mr. Fanning says that it will be at least 14,000,000 pounds. Of these about 8,000,000 pounds have already been shipped, the prineipal shipping points being New York, Boston and Chicago.

Mr. Fanning and the Chamber of Commerce agree upon the estimate of 25,000 acres as representing the prune-planted area of Oregon. Of these there are, according to Mr. Fanning, 14,000 acres of bearing and 11,000 acres of non-bearing trees. The Chamber of Commerce estimates the bearing acreage at 22,000 aeres and non-bearing at 3350 aeres.

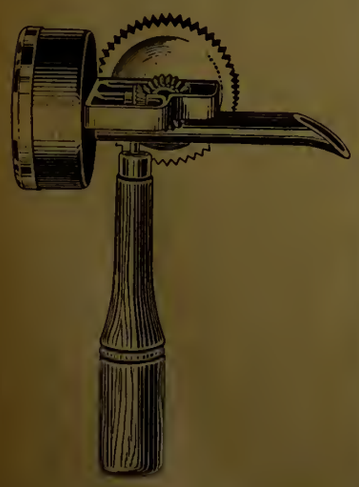
The largest prune orehard in the State is owned by W. G. Allen of Dundee, who has 250 acres in prunes.

The chief counties in which the fruit is raised in Oregon are Yamhill, Clackamas, Polk, Marion, Multnomah, Union, Washington, Lane and Linn.

This year the growers have fixed a price of 10 cents a pound for the best grades of their produet and 7 to 9 cents for other grades.

New Hand Seeder

HERE'S a new help to the baekyard farmer. It is a hand drill and seeder with whieh one man can do as much work, so it is elaimed, as six men would do in the same time under the old system. The seeder works along a board and it avoids the annoying and time-wasting proeess of



too thiek seeding and subsequent thinning. The angle at which the seeder is held gauges the depth of seeding

This tool is as mueh ahead of hand sowing as a corn planter is ahead of planting eorn by hand.

Expert hortieulturists say the tool marks the only real improvement made in the last 20 years in a hand seeder and drill.

The picture above gives you a good idea of how the drill and seeder looks ready for use.

Our present and immediate task is to win the war and nothing shall turn us aside from it until it is accomplished. Every power and resource we possess, whether of men, of money, or of materials, is being devoted and will continue to be devoted to that purpose until it is accomplished.—President Wilson

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JAMES D. YATES,
Poultry Judge, Modesto, Cal.

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No matter what job on the farm comes up requiring a power plant—the Yuba is the efficient machine—sturdy, strong and requiring little repairing—it's the constant-working that commends it to practical farmers.

The YUBA will pull a plow any place a plow should go.

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Gentlemen: Kindly send me catalog and prices on the Yuba Ball Tread Tractor.
I am interested in Model 12-20____ Model 20-35____
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[Check main crop raised]
____Fruit ____Rice ____Grain
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The Yuba Pump Catalogue and the Tracover Booklet will be sent on request.

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Factories at Marysville and Benicia, California — 433 California Street, San Francisco

Plant Fruit Trees

Peach and Apricot Growers Throughout the State Have Had BIG RETURNS

Many growers report having received from $300 to $600 per acre from crops harvested this year. The Muir and Lovell varieties in Peaches and the Tilton and Blenheim varieties in Apricots seem to be favorites. The largest returns per acre are reported from these varieties. The delicious fruits are old standbys and nobody ever makes a mistake in planting them.

Notice to Planters

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The Killefer is an ideal machine for orchard work. Extreme height being 20 inches permits of machine working close to and under trees. Is easily adjustable, cutting and pulverizing at any angle desired. Built in five sizes—5 feet wide, 6 feet, 8 feet, 10 feet, 12 feet.

Write for descriptive illustrated catalog 0.

The Killefer Manufacturing Co.
2209-2221 Santa Fe Ave.
Los Angeles, Cal.

A Big Raisin Yarn

But It Is a Plain Fresno Fact

By J. F. Jarrell

IN THE information booth of the California Land Show at San Francisco, C. L. Seagraves, industrial commissioner of the Santa Fe System, picked up a newspaper containing a page of State items. His eye caught a paragraph under a Fresno date line, telling about Wylie Giffin leasing for five years 1800 acres of raisin land, paying therefor an annual rental of $55,000, or $30.55 per acre a year, or $275,000 for the term.

"That's the way it is done in Fresno County, in the San Joaquin Valley of California," Mr. Seagraves said, as he handed the paper to me.

As the man in the information booth was supposed to know everything, I asked him if he didn't think there was a typographical error in the paragraph, the amounts stated being so high, or, rather, seeming so to me.

"My guess is that the item is all right," the man answered. "The raisin yield in the Fresno district is immense, and producing vineyards are worth the price named."

A Visit to Giffin

Having some time to spare, I stopped at Fresno, and called upon Mr. Wylie Giffin, who is at the head of the California Associated Raisin Company, a co-operative organization with a membership of from 8000 to 10,000 growers of raisin grapes. Asked about the lease, Mr. Giffin said, casually:

"Yes, we have taken over the Lucerne vineyards, near here, for five years, and will pay $55,000 a year rent. There are about 1800 acres in the tract leased, but less than 1300 acres are in grapes. Producing grape lands in these parts rent for about the figure we are paying for the Lucerne property."

If an easterner, unacquainted with conditions in Fresno County, California, had leased this 1800 acre tract for five years for $275,000, I would have said off-hand, not knowing much about the deal, that the owners of the Lucerne property were better traders than their customer; but, in this case, the man who leased the land lives in Fresno, and knows the raisin game from the first cut of the cards to the last call.

A Ton of Raisins Per Acre

He is a raisin expert, educated in the heart of the greatest raisin producing section of America. To him, to the lessors, to Fresno and California people generally, the transaction described is not unusual. To readers who are thinking of California as a probable future home it will be food for thought.

What one man can do in California other men can do. There is nothing miraculous about growing stuff on a big scale in California.

According to Mr. Giffin, raisin production will average a ton to the acre; the average cost of production counting everything, including marketing, is $50 a ton, and the average selling price is $100 per ton. These are averages, for California, remember. Many producers, especially in Fresno County, do a great deal better than that. Here is an example, given me by Charles Teague, a prominent citizen of Fresno, who owns several vineyards:

Henry Markarian's Experience

Henry Markarian, an Armenian, who has a place of 60 acres, made $50,000 net out of his raisin crop in 1916, and will do as well this year. Markarian was without funds when he located in Fresno County fourteen years ago.

It might incidentally be stated that 95 per cent of the 150,000 acres of raisin grapes grown in California are in Fresno, Kings, Tulare and Madera counties, in the famous San Joaquin Valley. The State production this year will be better than 150,000 tons. The Thompson seedless bears in three years; the muscat, in five or six years. Raw raisin land can be bought from $100 to $200 an acre; producing land from $300 to $700.

How to Make a Start

J. M. Wrighson of Guggenhime & Company, independent raisin packers of Fresno, said that the family with small means had no difficulty getting along for the three years their grapes are growing. A good milk cow, a few chickens and some pigs, with the crops which can be grown between the rows of grapes, will meet the family needs.

"Fresno County offers a fine opportunity to the man who has some money and a desire to work," Mr Wrightson said.

The average raisin grower in the San Joaquin Valley has about thirty acres of land. Most of the growers, started on a small scale, and there is no doubt in the minds of successful raisin-growers that there is on the market today inexpensive land which can, by the exercise of brain and muscle, be made as valuable as that leased by Mr. Giffin, or that upon which Mr. Markarian made a fortune, who now are making good money, last year.

Sudan Grass Saves Grain

AN interesting experiment has been made this year by California grain growers which tends to prove the value of sudan grass as a fire preventive. Grain growers having immense fields of grain realize that each year they must face the possibility of a fire that will wipe out their entire crop. And so they have adopted the scheme of "cutting" the field in parts with strips of sudan grass.

When the grain is ripe enough to burn, the sudan grass is still green enough not to burn. So they plant sudan grass in a strip—say eight or ten feet wide through the length and breadth of the field. This makes a "cross" in the grain field, dividing it into four parts.

Recently a disastrous fire swept one of the largest grain fields in the State. Strips of sudan grass divided the field into four almost equal parts. The grass was five feet high and as green as oats in June. The fire started in one of the "quarters" and burned fiercely until it reached a strip of sudan grass. There it died out. The rest of the grain field was saved.

Aside from its value as a hay, it is likely that sudan grass will become popular among California grain men as a means of preventing the spread of disastrous fires.

L. L. DeBRA.

If the car is left in the garage for four weeks, the battery should be removed to a service station and charged.

One benefit of the war is that it has induced consumers to study foods and food values.

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The 4 H. P. Cushman Handy Truck is the most useful outfit ever built for farm work. Engine weighs only 190 lbs., and entire outfit only 375 lbs.

Besides doing all farm and household jobs, this 4 H. P. Cushman may be lifted from truck and hung on rear of binder during harvest to save a team. In wet weather it saves the crop.

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SURPRISING RESULTS

A sprinkling every week or ten days keeps the plants well nourished, and insures a big crop of choice berries. Nitrate of Soda is taken up by the plants immediately after application. Clean, odorless, and easy to handle. Direct from Chile in original bags.

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518 Bank of San Jose Bldg.,
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Starting Cold Engines

ONE morning last spring I had a lot of wood to saw, so I hauled our large engine to the woodpile and got things ready. It was one of those days that started out quite cold in the morning, and warmed up along toward the middle of the day. The engine was cold, and I found on turning it over that there was very little compression. The piston rings were of course in their grooves, and because of the cold would not expand enough to give sufficient compression to start the engine.

As a rule I started the engine on compression as it was too large to start by cranking without a great amount of hard work. But as the engine was cold I could not get enough compression to make the priming ignite.

So after working for a while I came to the conclusion that if I could only get an explosion it would warm up the piston rings and the compression would then be enough to start it. But by using the ordinary methods I was unable to get the explosion. Finally I took out the spark plug, moistened it with gasoline, and after putting it back again I primed the engine through the priming cup, turned it over, and away it went.

After that the piston rings were "thawed out," so I had no difficulty in getting enough compression to start it as I usually did it. I realized then that by putting gasoline priming directly on or near the spark, it would be more likely to ignite than by priming by the priming cup, which was not near the spark plug.

That gave me an idea: why not have it so that I could prime the first charge, close to the spark? So I tapped a hole close to the spark plug, found a gas cock, and by putting it on a small piece of pipe I screwed it into the hole that I had tapped, and after that when I wanted to start the engine when cold I first primed through the spark-plug priming arrangement that I had put on. Since then I have never had any more starting troubles. I also placed this priming cock on a "make and break" engine near the spark points, and it seems to be as effective on that as on the "jump spark" type. This method is particularly valuable when one desires to start a gasoline engine in very cold weather.—Charles E. Richardson in Farm and Fireside.

Wasting Gasoline

A CAR that seems to be a gasoline cater frequently has poor compression, which indicates that the valves need grinding, or that poor oil is being used, or, in the case of an old car, that new piston rings are needed. When compression is poor the explosions in the cylinder are weak, and the throttle must be opened considerably more to secure the desired power. This wastes gasoline.

The use of an unnecessarily rich mixture (gasoline and air) is another cause for excessive gasoline consumption. Carbon in the motor is still another cause.

By covering your ensilage immediately after it has been put into the silo with tar paper, lapping it three inches and then putting three or four inches of silage over the paper, there is only a slight coating of moldy silage beneath the paper when the silo is opened. You thereby save from a foot to sixteen inches of silage that would otherwise be waste.

Great Little Tractor

For Orchards and Vineyards

Built by Long-Established Concern

Here is the tractor that the owners of orchards and vineyards have wanted to buy for years. It is built by the Bean Spray Pump Co., makers of the famous Bean Sprayers and Pumps. It does what no other tractor has ever done before. Its patented front-drive offers exclusive features, which sooner or later you will want in a tractor. Don't buy any tractor until you know all about it. Don't find out about this too late.

Great Traction With Light Weight

This is the lowest-priced track-laying tractor manufactured.. It weighs but 3100 lbs. and costs less to operate than wheel-type tractors of equal power. Note how the track grips the ground, and compare that contact with the wheel-type's.

This means great pulling power with a very light tread. No other can work so well in light soil.

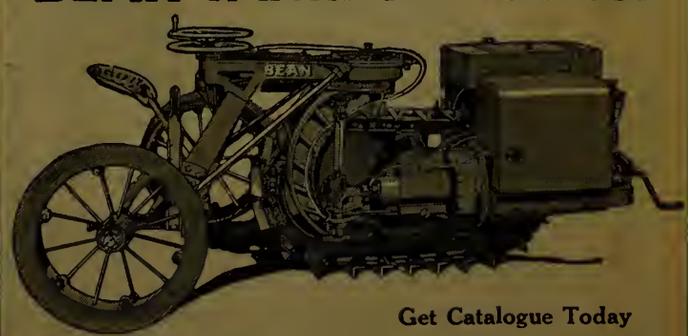
Handles Better Than Horses

This Tractor is handled more like horses than any other machine in existence. And it does what horses cannot do. It will pass under tree branches only 4 feet off the ground, plowing close up to the trunks. It works between 7-foot rows in vineyards, and cultivates right up to the vines without breaking off young shoots.

You can turn it all the way around inside a 10-foot circle (5-foot radius); and it pulls with its full power on these turns the same as on straight-aways.

When you hit soft spots or holes you simply "gee" or "haw" the track and pull out, as you would with a team.

BEAN TrackPULL Tractor



Pays for Itself

The Bean TrackPULL Tractor pays for itself in what it saves its owner. It is simple and strong and durable. Every part is over-strength. The motor is an automobile type, so you know how to care for it. The Tractor is rated at 6 h. p. at drawbar, and 10 h. p. at the belt. On account of the patent front drive principle and simple transmission the fuel consumption is far less than other types doing the same amount of work.

NOW $1215

F. O. B. San Jose

Get Catalogue Today

Send the coupon for our new catalogue. Send it today, for the price of this Tractor may have to be raised without notice. The necessary cost of materials, due to the war makes a permanent price impossible.

Bean Spray Pump Co.
625 W. Julian St.
San Jose, California
433 N. Los Angeles St.
Los Angeles, California

Please send me your Tractor Book with full information about the Bean TrackPULL Tractor.

Name.....
Street.....
City.....
County..... State.....
No. of Acres ..... Crops Grown

TRACTOR USERS ATTENTION!

And anyone with 6 or 14 horses—let us build you a SCHMEISER LEVELER of the GIANT TYPE. Remember that we allow you to use same for 3 days. In other words, you are the judge and the jury.

These machines are very inexpensive to run. They are as fool-proof as mechanical ingenuity can make them. They have a wonderful capacity and will soon pay for themselves. As one of our customers states, it will make a deep fill as well as put the finishing touch on a fine garden.

Let us send you one of our latest catalogs on these earth moving machines as well as other articles we manufacture.

These Levelers move immense amounts of dirt daily and work on ground too tough for horses and Fresnos to tackle, and are now being used with utmost success by a great many ranchers, large and small—also by contractors—saving their owners time, labor and money.

Please advise the horsepower you have, so we can quote you intelligently on the machine suitable for that power.

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321 Mechanic Street, - - - -DAVIS, CAL.

Manufacturers of

Sure Pop Almond Huller and Separator, 3 sizes; McGarvin Fruit and Olive Graders, any size; Schandoney & Harrington Equalizing Hitches, any size; Diamond Special Harrows, Baker Singletree Clips, Martin Farm Ditcher and Road Grader, and Schmeiser Portable Automatic Hay Derricks.

About Crop Selection

Problems of the Coast Rancher.

By D. J. Whitney

Of Exeter, Tulare County, Cal.

IN THE October number of Orchard and Farm the writer gave it as his opinion that as a general rule the best crops to grow in irrigated California were those particularly adapted to climate and conditions, such as grapes and fruits, rather than staples like Indian corn, which could be grown over nearly the whole country.

I would include in the list of very suitable crops alfalfa, the king of forage plants, and no other crop is so universally planted or so universally and justly popular as that.

Aside from its other merits alfalfa is particularly and uniquely suited to irrigated farming on account of the ease of irrigating it. Cultivated crops —which means nearly everything else —when irrigated require perpetual work of the soil such as furrowing out, cultivating to prevent baking, and so on, until the grower has to get far more income from the land than does the producer of unirrigated crops in order to break even. But with alfalfa the only extra work to amount to anything over alfalfa growing by rainfall is the leveling of the land, building the ditches and looking after the water when it comes.

To offset this extra work he has the advantages of a deep rich soil, a long growing season and moisture control that keeps growth going from early spring to late fall.

Things About Alfalfa

California irrigated lands are therefore particularly adapted to alfalfa production and there is a good reason for growing it.

The main reason for discussing this matter is that there are lots of places where alfalfa should rule as king, lots where evidently it should be crowded out by more profitable crops; and some places where it should share honors with other crops, which will all be explained forthwith.

This section of country is one where alfalfa shares honors with other crops and it shows perfectly why it ought to be grown very commonly in some places and hardly at all in others.

Briefly, I would state a general rule something like this: When soil and location particularly favor special California crops, such as citrus fruits and raisin grapes, for example, it is more profitable to grow those crops and to ship in alfalfa than to try to grow the alfalfa that is used. Whether alfalfa can be profitably grown among trees or not is another question altogether.

How the Rule Works

How the rule works in actual practice in this part of the State is this. Along the very best citrus locations in this section you will find no alfalfa grown at all, except in rare and small patches and farmers buy the alfalfa they use. Getting out on to the valley several miles where frosts are more abundant and severe citrus and other tender fruits are more of a risk and less profitable, so alfalfa gets more and more abundant, and finally when one gets out on the moist fertile lands once making part of the bed of Tulare lake—say around Corcoran for example—alfalfa rules supreme as king.

And, similarly, as one goes north and enters the heart of the raisin country he finds that vineyards have expelled other crops almost entirely, until those places again are reached where alfalfa does better and vines and fruits prove less satisfactory.

Another reason for this situation is that the land frequently is too uneven in the best fruit sections for the cheapest and most satisfactory alfalfa production, and water too scarce or expensive to develop.

In a way all that has been said is the simple statement: Grow what is most profitable for the location. Just in this immediate vicinity, however, the problem is particularly live and interesting and it illustrates the whole matter so very well.

Just on the Edge of Things

This immediate vicinity is just being developed, and it is a case of "Pay your money and take your choice" whether oranges, olives, alfalfa, Emperor grapes, Thompson seedless grapes, or deciduous fruits will be planted. You can find them all right close at hand, alfalfa in the lead on account of recent high prices, and the others coming along fast as permanent propositions. Alfalfa is partly temporary and partly permanent, according to present ideas. If temporary, the benefit it is to the soil is not the least of its advantages. It costs more to raise alfalfa around here than around Corcoran for example, or say the Imperial Valley, but there are special advantages to alfalfa here.

Down in the Imperial Valley there is alfalfa galore, here not very much and on some farms none. Five or six miles away, for example, is a very specialized citrus center where alfalfa is a curiosity, so to speak, and everybody needs hay for their horses and then more hay.

Jones may get enough money from an acre of lemons and oranges if he has a first-class citrus grove, to buy the crop of five acres of alfalfa, so he buys alfalfa instead of growing it. He would as soon have loose hay as baled hay, so the local alfalfa grower from whom he buys saves the cost of baling, which the man a long distance off would have to pay before shipping.

Specializing Pays

Besides Jones with his citrus grove can deal verbally with Smith, the alfalfa grower in lower land a few miles off, make the dicker he wants and see what he is getting. He could not buy so well from an alfalfa grower 20 miles away. The result is that Smith, who is on the edge of a citrus or raisin district, finds a better market right at his door than Brown, who is in a strictly alfalfa district far from a fruit district, where there are many alfalfa producers and few alfalfa buyers. Therefore Smith will get more for his alfalfa than will Brown.

This is an illustration of cases when a man can well debate whether he had better grow alfalfa for his neighbors, or grow other crops and buy what alfalfa he needs for his horses wherever he can get it.

There can be little question but what it is more profitable for a man who has the right location for specialized and profitable crops like raisins or oranges to grow such special crops and ship in what hay he needs from strictly alfalfa sections—unless by chance he can buy it better near at hand.

Alfalfa and Livestock

Three summers ago alfalfa sold from a ranch less than half a mile away at six dollars a ton, which makes it look like a risky crop to depend upon. This spring, by the way, it was around $20 a ton, this summer down

Waterloo Boy Tractor

For Orchard and Farm

The Most Service.
The Greatest Economy
The Best Price

The least trouble. Does the work of eight big horses on 15 gallons distillate or kerosene per day. Send for catalogue.

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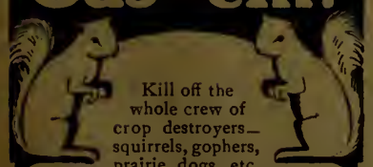
State Agents,
208 North Los Angeles St.,
Los Angeles, Cal.

ONLY 3 CENTS A WORD.

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month. Address Orchard and Farm, Examiner Building, Los Angeles, California.

Gas 'em!



Kill off the whole crew of crop destroyers—squirrels, gophers, prairie dogs, etc.

Gas 'em with Carbon Bisulphide quickly, easily and economically.

One burrow of squirrels will destroy more grain than your family can save in fifty wheatless days. Remember—these ground pests cost the farmers of the Pacific Coast more than $6,000,000 last summer. So be forehanded—be truly patriotic—*conserve the seed in your fields.*

The University of California says: "From November until the end of February (the rainy season in California) the best way to attack the ground squirrels is to fill their burrows with gas from Carbon Bisulphide."

So too in other states! If the ground is full of moisture, whatever the month may be, Carbon Bisulphide is the best killer of squirrels, prairie dogs, gophers, etc.

A squirrel killed before March is worth a dozen killed later. Because—most young squirrels are born late in March or early in April. *So—gas the old squirrels now.* Write today for prices and interesting folder telling how Carbon Bisulphide—the profit-saver—works.

WHEELER, REYNOLDS & STAUFFER
624 California Street
San Francisco, California

Use CARBON BISULPHIDE

to $12 and $14 and now is up to $20 once more.

What has been said about natural places for alfalfa will suggest at once in what livestock should be mostly raised. For example, the main excuse for alfalfa production right around here is the good market for it from citrus growers and others, making the alfalfa average perhaps three dollars a ton (this estimate is made without detailed figuring) more than it would be worth in a straight alfalfa country. If a man feeds that alfalfa to cows or hogs or steers which could be raised exactly as well in an alfalfa section, and would sell at as good a price, he would throw away three dollars a ton on all feed.

Somebody may say "Dairying is what pays." All right, but the cheapest place for dairying is in an alfalfa section, not in a fruit section. The point doubtless is plain. The question is a live one for there is dairying going on right close to here.

Nothing Like Alfalfa

Now this is a large subject with many sides and it will prove extremely important when the soil in straight fruit farming begins to show the lack of livestock. It is a question not touched on above, for example, whether it would not pay well in the long run to grow alfalfa in fruit and raisin districts for the sake of having the manure for the land; whether the higher price of alfalfa in fruit districts would not be made up by the benefits of the manure; or whether the manure should not be shipped in as well as alfalfa; or perhaps whether dairying or other meat production should not be undertaken on fruit farms on purchased alfalfa in order to provide manure for the soil.

As long as special crops pay big dividends it is certainly better to ship in alfalfa from alfalfa sections than to set off high priced land to raise it.

Alfalfa is the right crop to talk about in this connection; it enriches the land, as hay it provides abundant nitrogen for livestock and for the land, and nitrogen is the most expensive, necessary, valuable and profitable plant food that can be secured.

The Little Landers

NEXT year will see another great advance in the art of little-landing. Not only will the number of home gardens be multiplied in response to the government's demand, but we shall have more than gardens—we shall have eggs, milk and several different kinds of meat as generally as we now have gardens. And this is but another way of saying that we shall more perfectly realize the paradox of better living at less cost for the average family.

The way is being prepared for a wonderful evolution in American life. Cities will become rural and the country urban. The home in a garden will be the common aspiration. Men will find the way to a degree of independence hitherto enjoyed only by the fortunate few.—William E. Smythe in Little Lands in America.

California Onions

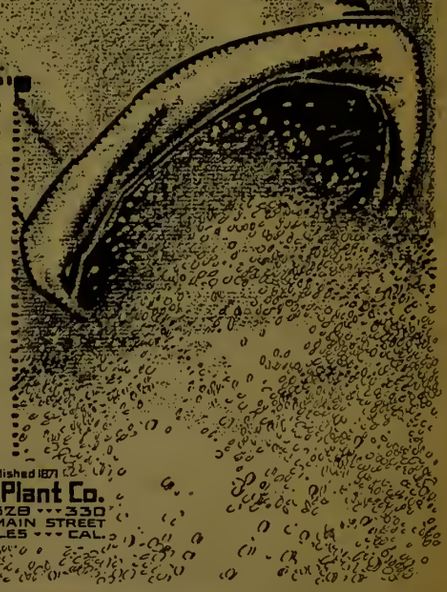
ACCORDING to the United States Crop Reporter there were 9000 acres planted to onions in 1917; this acreage was only exceeded by the State of New York where there were 9800 acres. While the acreage was 800 more than that in California, the percentage of production was much heavier in California, being 93 per cent of normal as against 62 per cent in New York.

The production of California is 3,348,000 bushels as against 2,891,000 bushels in New York.

Plant Germain's SELECTED SEED GRAIN

Wideawake growers are planting *selected seed grain this year.*

In these days of conservation, Hooverizing and high-priced grain, no farmer should take chances. The Government wants 100% crops. Insure best results by planting Germain's selected seed grain only. Write or call for information.



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Established 1871
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Electric Light for Your Farm

Uni-Lectric lighting plant generates standard 110-volt direct current; operates from one to fifty lights, electric motor, electric iron, vacuum cleaner, electric toaster, force pump, churn, washing machine, etc. No Batteries—No Switchboard—and a better machine for less money. High speed gasoline motor, generator and automatic governor, all complete in one small, compact unit. Uses standard lamps and fixtures. Simple, easily installed, dependable, economical. Costs less than other systems to buy and to operate.

Write today for full description and low price.

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TREES We offer a few choice prune, pear and cherry trees, also other first class nursery stock at special low prices. Order today.

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185 E. 87th St., N. Portland, Ore.

Bradley Gas Saver for Fords

The Gas Saver with the unrestricted guarantee; automatic in action; cannot get out of order; can be instantly installed; makes smoother running car; prevents engine from overheating; gives speedier getaway; gives better results in high. If it does not save you 20 to 35 per cent on your gasoline bill, return and we will refund your money. A mechanical device, scientifically correct $1.75

Only $1.75 by parcel post. Agents Wanted.

947 Georgia St., Los Angeles, Calif.
Co.-Operative Sales Co., Sole Factory Agents.

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Complete day and evening courses in bookkeeping, accountancy, stenography, typewriting, English, mathematics, radio, preparatory, grade, electrical, mining, surveying, mechanical, automobile, machine shop, vulcanizing.

Also ideal grade and high school. Large faculty of specialists, swimming, gymnasium, etc. Send for free catalogs and name course in which you are interested. Address W. H. McCALLEY, registrar, 715 S. Hope st., Los Angeles, Cal.

NEW TERM OPENS JAN. 2.

EDITORIAL DEPARTMENT OF ORCHARD AND FARM

Bailey Millard, Editor.

A Year of Promise

HAPPY NEW YEAR to you out on the farm there!

Do you realize that this is going to be the biggest year in history?

That's just what it is going to be, and you, Mr. Farmer, are going to make it so.

You are going to make the Kaiser and his crew come off the perch.

You are going to win the war.

You are going to do it, because you are going to feed the Yankee boys and their noble allies better than the Teutons can possibly be fed, and you know soldiers fight on their stomachs, or rather what's in them.

The stomachs of our boys will be full, and they will be able to give a good account of themselves.

And you will be the ones that will fill them.

In California we are looking for a year of the greatest production ever known to the State.

Prices are going to be good, and you farmers are going to get your share of what money is in circulation.

Don't doubt, don't grouch, don't worry about how things will come out.

Smile and keep busy.

Happy New Year!

Teague Is An Example

LOOK at the record that is being made by J. N. Teague as given in another column.

Teague isn't sitting down and wondering how the war and the markets are going to come out. He is getting in and raising his little 275 acres of cauliflower this year and he is going to follow this up on the same land with potatoes, barley, oats and corn.

He did the same thing last year and he made good money.

He saw that the war was the great opportunity of the farmer and he saw beside that it was his patriotic duty to produce and produce and keep on producing.

He sent two sons to the war and was sorry he couldn't go himself, but as long as he couldn't go, because of age disqualification, he determined that he would follow the farm-or-fight idea to its logical conclusion.

He is producing a lot of food, and mighty good food, from that 275 acres of his; and if every farmer in California were producing as much Hoover would smile all over.

Of course everybody can't go in for cauliflower. All kinds of land are not suited to that crop.

What is your land good for?

What will it raise the most or the best of this year?

Beans, beets, corn, barley, wheat, fruit, alfalfa?

Whatever your best crop is, get in and grow it and grow a lot of it.

Follow the example of Teague. His soil ran down a bit by frequent cropping. He restored its fertility. He is raising more to the acre than any of his neighbors.

Try his plan.

Dairy Stock Reduced

JUDGING by the most reliable information obtainable, the dairy stock of the world, including that of this country, has been greatly reduced, and will suffer further reduction, due to the comparatively low prices for dairy products and the high prices for meat and the feeds that go to make meat or dairy products.

It is said that in the eastern part of this country entire dairy herds have been sent to the slaughter because returns have not warranted maintaining the herds.

A national authority has made the startling statement that if the present trend in dairy circles continues the cities will soon be crying for milk and there will be insufficient to supply them.

THE SUNRISE OF DEMOCRACY

THESE are really the most hopeful times in the world's history and we pity the poor intelligence that cannot grasp this very obvious fact.

For forty years there was upbuilding in Europe a damnable autocratic military machine that threatened both hemispheres. We have lived to see that machine in its towering might menacing all Europe and America go tottering to its fall. True, the diabolical spirits behind it have conceived and wrought much destruction, but they have done what they did not dream of doing at the outset—they have united all the civilized world against them.

We see today every nation worthy the name firmly cemented together to uphold the cause of democracy, and no matter how this great and inspiring coalition was effected, it is now a big and glorious fact and it is going to remain a fact all through the centuries.

This union of civilized nations did not exist before the war. It exists now and we should thank God for it.

Democracy, both at home and abroad, always has been an empty word. We did not really have it in this country, for we were ruled by plutocrats—men who could buy and sell legislators and judges. Our entire political system had been perverted to sustain the dignity of dollars.

In Europe, constantly threatened by the overbearing house of Hohenzollern and its strutting war lord, democracy sang small. It hardly dared to lift its head.

Today the whole world is in open rebellion and redhot warfare against the poisonous Prussian system of autocracy. The hosts that have arisen against Teutonic treaty-breaking treachery are democratic hosts. They are not monarchical, they are not plutocratic—they are full of the true spirit of liberty.

Kaiser is merely the German for Caesar, and Czar is the Russian word for that worthy office of absolutist. The Czar was tipped off his throne, and the Kaiser will be tipped off too. He will be forced into permanent retirement. There is no place in the great democratic plan for such a being.

Anyone who doubts for one moment that our nation was in imminent peril from Teutonic deviltry should read the memoirs of Ambassador Gerard. In one interview which Mr. Gerard had with the German Emperor he says:

"The Emperor was standing, so, naturally, I also stood; and, according to his habit, which is quite 'Rooseveltian,' he stood very close to me and talked very earnestly. * * * The Emperor showed great bitterness against the United States and repeatedly said, 'America had better look out after this war,' and 'I shall stand no nonsense from America after this war.'"

And again at a social function given at the residence of a German cabinet minister early in 1915 the Duke of Mecklenburg Schwerin repeated the sentiments of his master. As Mr. Gerard says:

"He planted himself some distance away from me, and in a voice so loud, and slapping his chest so hard, that everyone in the room stopped his conversation in order to hear, addressed me in German, saying:

"'You are the American ambassador, and I want to tell you that the conduct of America in furnishing arms and ammunition to the enemies of Germany is stamped deep on the German heart; that we will never forget it and will some day have our revenge.'"

Mr. Gerard adds:

"As he wore on his breast the orders of the Black Eagle, the Red Eagle, the Elephant and the Seraphim, when he struck all this menagerie the rattle alone was quite loud. I reminded him politely of The Hague convention, of the fact that we could not change international law from time to time with the change in the situation of the war, and that Germany had furnished arms to England to use against the Boers. But he simply answered, saying, 'We care nothing for treaties.'"

But soon we shall have all this unbearable arrogance on its knees, begging for its life. We shall be able to do with it what we will. Democracy shall have its say and not cold-blooded, dictatorial autocracy.

And what a blessed thought it will be to the American farmer when he realizes that he has been one of the chief instruments in saving the world from the blatant beasts that have tried to override it! Will he not smile in triumph at what he has wrought?

For, after all, it was the hand of the husbandman as well as of the warrior that has helped to hew down autocracy and smash in its spiked helmet.

And it will be a triumph of principle for those men who fled from that land of militarism because they would not serve under the iron rule of Prussianism and who came to this country to escape from the position of slavish obedience to the little tin gods who rattled their swords and stuck out their pouter pigeon breasts covered with the silly emblems of their various orders. What a delightful commentary upon those emblems was Gerard's word, "menagerie."

What Gerard has written makes it clear that if President Wilson had humiliated himself and the country by submitting with a mere verbal protest to the continuance of the submarine outrages that would not have saved the United States finally from war, but only would have postponed it.

President Wilson knew what he was doing when he declared war. He knew better than any other man in the country, for he had better sources of information—that of his Ambassador to Germany, for example, whose words lately have revealed what many of us had merely guessed at

But bulliragging autocracy has had its day and will go down before the banners of glorious democracy, and the credit will be as much to our farmers as to anybody, for they have toiled hard to make the dream of victory come true.

Yes, the sunrise of democracy is about to shoot its splendid rays above the horizon.

Be prepared to salute it all, ye valiant ones, and to know that something beside autocracy will perish in its dazzling stare, for special privilege of every kind will perish with it.

Plutocracy will be slain along with autocracy and liberty will rule the world at last!

Patriotic California

CALIFORNIA has proved her intense patriotism during the past year. She has set the high-water mark for the raising of food products. That mark never has been approached in the same extent of territory anywhere

We are wonderfully proud of the Golden State.

She raised a million bushels more wheat last year than in 1916.

She dug and marketed three and a quarter millions bushels of potatoes more than in the year before.

Of rice she raised two million bushels more.

Of barley two million bushels more.

Of corn half a million bushels more.

Of dried fruits and vegetables hundreds and hundreds of tons more

Of canned goods carloads and carloads more, including over four million pounds more of fish than in any other single year.

These are all round numbers, but for citrus fruits the records are exact enough. We shipped 54,361 carloads of those fruits during the past season, thus eclipsing even the famous production of 1914-15, which was 48,548, by 3813 carloads.

We increased our production in many other ways, too, among some of the items being that of 860,892 more barrels of oil than were produced the year before.

And to crown all this patriotic demonstration in the year of the world emergency we have the grand record of $290,000,000 as our share of the Liberty Loan subscription.

Oregon, Washington, Idaho, Nevada, Utah and Arizona also have done nobly.

In certain districts of the Pacific Coast there were to be found people who during the past year didn't seem to know that there was a war in which we were vitally concerned as a nation, but these people are waking up.

Soon everybody will be in line and all working to pull down the autocrats who by this time would have had the Kaiser's picture on our postage stamps if they could have had their way.

Let's Abolish Fear

IF we were to name any element of human life that is most responsible for loss or disaster it would be that curse of all creation—fear.

Fear brought on this war—the fear of the Kaiser that he was not going to be able to control the European situation.

Fear has cost Russia her place in the sun.

Fear made stupid Turkey an ally of the Teutons.

Fear is the cause of most excessive libation of alcohol. To nerve himself up for the day's work many a man has formed the drink habit.

Fear of disease—a constant haunting sense that something is going to be the matter with you—has, in spite of all sanitary precautions, made the race weaker year by year.

If you are fearful that your food will disagree with you you may rest assured that it will.

If you are constantly fearful of accident you may set it down right now that something dreadful will happen to you.

Let's be braver this year than we were last.

Let's not be fearful of appearances—that somebody will think we are not just all we ought to be in dress and appointments.

Let's be ourselves—men and women unafraid.

At the same time let us exert common sense caution. It is good to bear in mind those stimulating lines of the poet,

Be bold, be bold and everywhere be bold;
Be not too bold

Sunflowers

Picked from Puck.

Not Dressed Right

Officer: Halt! Where are you going?

New Recruit: Down the road to get some gasoline.

Officer: What, in that hat?

New Recruit: No sir, in the cans, sir.

One Touch of Nature

When everybody stood at attention.

Bostonian Impression

Mr. Backbay (after the Christmas entertainment): Well, son, what did you think of Santa Claus?

Little Emerson (aged five): Had he eliminated the lower facial camouflage, Father, I think his resemblance to General Joffre would have been most striking!

Insulted

Sergeant (to red-raw recruit): Now, my man, your job this morning will be to clean up the officers' mess.

R. R. R.: G'wan, let 'im clean it up 'isself

Not An Auto Ad

"On a recent trip through the mountains I met a man 98 years old that had never seen an auto before."

"Then that accounts for his old age."

Supplying the Names

"So you have twins at your house?" said Mrs. Nabor to little Jack.

"Yes um," he said soberly, "two of them"

"What are they going to call them, my dear?"

"Well, I don't know for sure, but I think their names is Thunder and Lightnin,' cause that's the names Papa called them when the doctor came in and told him about them."

Not There

"Indeed, madam," Mr. Staven to the [illegible] who had recently come to board with her. "I'm particularly anxious to have you try this chicken soup."

"I have tried it," replied the magistrate, "and my decision is that the chicken has proved an alibi."

The Coward

I'll gladly die; I'll cleave the sky
In daring aviation;
I'll face the guns of all the Huns
And show no hesitation.

I'll fight like mad, courageous—glad,
Mid cannons' roar and rattle;
In trench or field my spirit's steeled
To all the dreads of battle.

But I'm afraid I am not made,
(The truth must be admitted,)
Of quite the stuff that's brave enough
To wear that thing you knitted!

—Ella Bentley Arthur.

Such Is Married Life

"Archibald!" began his better half in angry tones, "my mind is made up—"

"Heavens!" interrupted the husband, "is that artificial, too?"

The Rule

"What is the secret of your good health?"

"I read all the articles on how to be healthy and then do all the 'don'ts.'"

Downright Mean

Contractor: It didn't cost me a cent to have that ditch dug.

Friend: How was that?

Contractor: I told all the boys in the neighborhood that they could dig a trench.

A Similar Effect

Hospital Surgeon (examining torso of newly arrived patient): Rather a nasty wound, friend. Your assailant must have used a soft-nosed bullet.

Patient: He didn't use any kind of bullet. I stepped in front of his flivver and he ran it through me.

And They Were Near It

"But, my dear Professor, there is an end to everything."

Founded 1842 **CASE** Famous the World Over

Never Before Have Silo Fillers Been Built the Case Way

In sturdiness and construction, in ability to do good fast work, Case Silo Fillers cannot be equaled.

All are built to withstand the severe strain put to a machine of this kind. Case Silo Fillers all have large throat capacities.

A simple gear-shift permits cutting four different lengths. The boilerplate knife-wheel prevents dangerous breakage.

Case Silo Fillers are made in three sizes—the 12-inch, with a capacity of 8 to 12 tons per hour; the 16-inch, with a capacity of 15 to 20 tons per hour, and the 20-inch, with a capacity of 20 to 30 tons per hour. This affords a size for any silo.

A complete description of Case Silo Fillers, with pictures, will be sent free upon request. Don't buy any Silo Filler until you have investigated the Case.

J. I. CASE THRESHING MACHINE CO., Inc.
(Founded 1842)
736 Erie Street, Racine, Wis.

Send for This Descriptive Printed Matter—All Free
Below are listed the different series of booklets and folders. Tell us which interest you.

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3—Grand Detour Plows
4—Threshers
5—Hay Balers
6—Silo Fillers
7—Road Machinery
8—Automobiles

Or, if you wish, ask for our General Catalog, describing the entire Case line. It is free.

Write Today

POULTRY BREEDING AND MANAGEMENT—By James Dryden. This book is written for the man or woman on the farm who is interested primarily in making poultry pay. The author's experiments at the Oregon Agricultural College, which have resulted in the creation of phenomenal strains of layers, among them a number of hens with records of 300 eggs in a year, and several with records of more than a thousand eggs in less than six years' laying, as well as chapters on systems of poultry farming, housing, feeding and incubation, are fully treated. Illustrated. 5½x7½ inches. 416 pages. Cloth. Net, $1.60. Address Orchard and Farm, Examiner Building, Los Angeles, Cal.

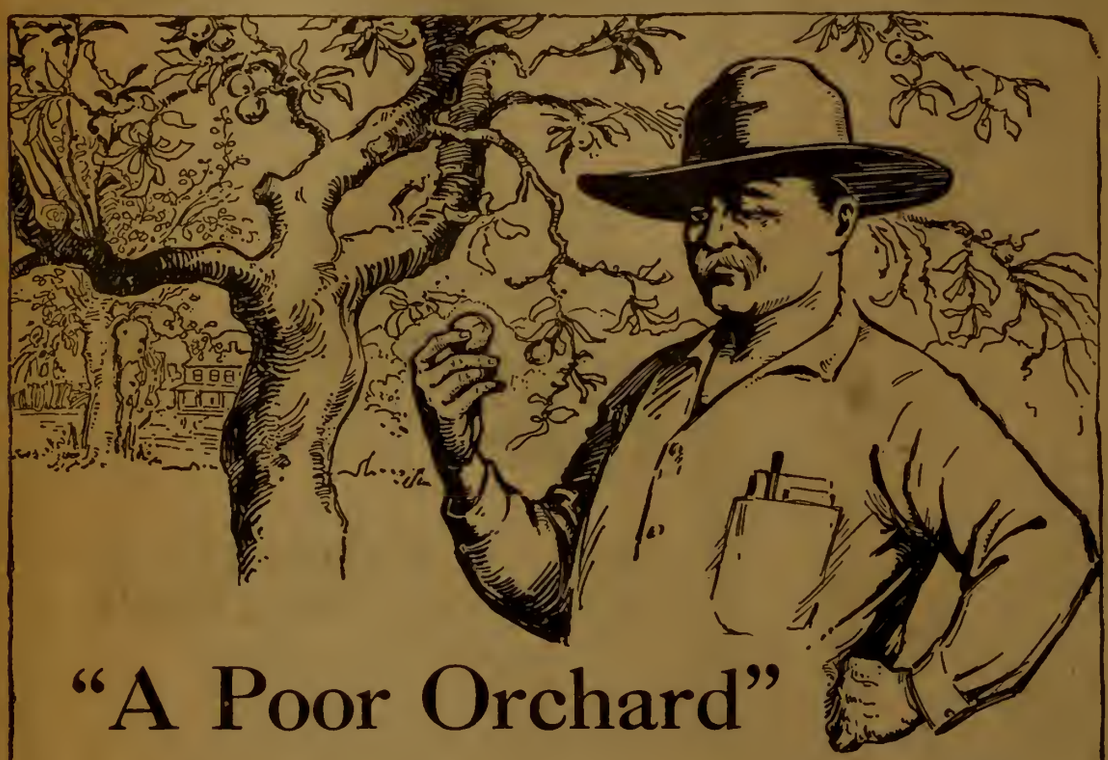
Of course, for best returns you send Hides, Calfskins, Sheepskins, Wool and Furs to
W. B. SUMNER & CO.
220 Townsend St. San Francisco

PRACTICAL FARMING AND GARDENING

Start the new year right by ordering a copy of this wonderful book today. It is needless to say that the advantages to be gained from a single practical idea, taken from any of these departments and put into practice, is worth many times the small expense incurred adopting the more approved methods.

This volume consists of over 500 pages handsomely bound in cloth, size 8½ inches long, 6½ inches wide, richly illustrated on good book paper, 200 fine drawings and halftones, with feeding chart in colors, and while the present supply lasts the book will be mailed postpaid, including three years' subscription (new and renewal) or Orchard and Farm, the great Western Farm Journal, for $1.50. If after receiving Practical Farming you find it is not just as advertised, and you are not thoroughly convinced it is a wonderful bargain, return it at our expense and we will cheerfully refund your money.

ORCHARD AND FARM, Examiner Bldg., Los Angeles, Cal.



"A Poor Orchard"

"It certainly is! Slow in bearing to begin with—a year behind some neighboring ones. Poor fruit and little of it when it did bear. And now it's petering out entirely, when it ought to be at its best. What's the reason? Blessed if I know."

His experience is not uncommon. Perhaps you are asking yourself just the question he did—although here's hoping you aren't. But if you are this advertisement may hold the answer. It does for the fellow above.

He didn't know it, but his troubles began when he failed to blast the holes for his orchard with

HERCULES DYNAMITE

As a result he didn't plant his young trees. He "buried" them. Their roots were jammed into a small hole with firm, hard sides. They had no such yielding, receptive earth in which to spread as they would have had if planted in dynamited holes. The trees were never given a fair chance.

Hercules Dynamite has been the making of many an orchard. You plant with it to begin with and then, later, you shake up the ground between the trees in much the same way. The result is an orchard that bears earlier and gives much more and better fruit.

There is a book, "Progressive Cultivation," that tells all about it. The reading of it will mean money in your pocket. It is sent free on request. Mail the coupon below, *today*.

HERCULES POWDER CO.

San Francisco California

Hercules Powder Company,
San Francisco, Cal.

Gentlemen:—Please send me a copy of "Progressive Cultivation." I am interested in dynamite for_____

Name_____

Address_____

Trapping Fur Animals.

By E. R. Skinner

THE trapper nearly always finds an opportunity to use a great deal of cunning and skill when trapping otter, as the animal is suspicious and not easy to catch. First of all, take every precaution to kill all human odor and to disturb things no more than is absolutely necessary. Use a boat if possible when making the set.

If there is a high bank along the stream find where the animals slide down to the water and set the trap at the bottom of the slide in about 10 inches of water. Fasten the trap to a strong peg set well out where the water is deep.

When using bait sets dig a narrow

Use a Light Trap for Weasels.

pocket in a steep bank; set the traps at the edge of the water, covering with leaves if possible, and fasten the bait back in the narrow hole.

A fish or frog makes the best bait. Splash water over the set to make everything look natural.

Otter skins should be cased and dried skin-side out. Open the tail and tack it out wide; take off the grease and fat when the pelt is green and cure the skin in a cool, dry place. Don't use salt, alum or any other harmful preparations.

Taking War Course.

In a report just rendered, W. H. McCauley, registrar of the Los Angeles Y. M. C. A. schools, said:

"Notwithstanding war conditions and the consequent draft upon our young men, the enrollment in our schools is unusually large. Over fifteen hundred men, from all parts of the United States and from foreign countries, have taken courses with us during the past year.

"The most popular courses have direct bearing upon business or military service. Among these are salesmanship, bookkeeping, higher accountancy, stenography and typewriting, automobile operating, gas engine operating, assaying and wireless telegraphy.

"Seventy-five gas engine engineers, and an equal number of wireless operators, have entered either the United States army or navy within the past six months from these schools."

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit-maker, write E. J. Reefer, poultry expert, 3771 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" cost you nothing. Send a dollar today or ask Mr. Reefer for his Free Poultry book that tells the experience of a man who has made a fortune out of poultry.

BIG MONEY IN TRAPPING

There is a STRONG DEMAND for California Furs

Write for our Fur Price List and 36-page FREE book

TRAPPING FOR PROFIT

Tells HOW, WHEN and WHERE to Trap. Shows how to make Sets. Tells you proper method in Skinning, Scraping and Curing Pelts, and the right BAIT to use.

E. R. SKINNER & CO.
SACRAMENTO, CALIF.

Make more Money Pull big stumps by hand

Clear your stump land cheaply—no digging, no expense for teams and powder. One man with a K can rip out any stump that can be pulled with the best inch steel cable.

Works by leverage—same principle as a jack. 100 pound pull on the lever gives a 48-ton pull on the stump. Made of the finest steel—guaranteed against breakage. Endorsed by U. S. Government experts.

HAND POWER K Stump Puller

Write today for special offer and free booklet on Land Clearing.

Walter J. Fitzpatrick
Box 316
182 Fifth Street
San Francisco
California

3 Cents a Word

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23d of the month. Address Advertising Department, Orchard and Farm, Examiner Building, Los Angeles, California.

Violin Music for Names of Three Violin Players

We give you a 50 cent Music Book of 23 select pieces for Violin in easy arrangement, printed on fine paper. Send us names and addresses of three violin players. We want every violin player to have our musical magazine, "The Musicians' Mouthpiece." Easy orchestra Books and Music. Strings for all instruments, etc. **Enclose 10c for mailing this Music Book.**

E. T. ROOT & SONS, 1540 E. 55th St., Chicago

SAVE MONEY ON SEPARATORS

[illegible] direct from my factories, where I build the [illegible] skimming, easiest cleaned, modern de[illegible] separators, from highest quality ma[illegible] and se[illegible] to you at lowest manufacturers' [illegible] wholesale.

[illegible] Galloway Sanitary Separators giving [illegible] everywhere. Four practical sizes. Also [illegible] spreaders. [illegible],000 satisfied customers [illegible] Close shipping points [illegible] catalog honestly describes [illegible] it before buying. Please [illegible] wanted

[illegible] GALLOWAY CO. [illegible] Waterloo, Iowa

How to Use Manure

HAULING manure directly from the stable and spreading it on the field has been found to give the least loss of manurial substances. This practice has the advantage also that the manure is handled only once. When this method can not be used, especially convenient constructed places to store manure should be provided.

A surface dressing of manure aside from its plant food value has also a mulching value in conserving soil moisture and in giving winter protection to grasses, clover, alfalfa and small grain crops.

Manure spread on plowed land and worked into the soil by cultivation gives the best results. It is advisable to disk before plowing, after spreading manure, in order to mix it more thoroughly and evenly with the soil. As a rule, the plowing under of the manure should be rather shallow, since deeply turned manure may not decay properly and tends to produce a losse, dry seed bed.

The danger in plowing under a heavy coat of manure is that the manure tends to break the capillary connection of the soil with the subsoil causing the surface to dry out, resulting in the "burning out" of the crop in a dry season.

A light application of manure yields larger returns per ton of manure used than does a heavier application. This has been proven by the trials at many experiment stations. Heavy applications of 30 to 40 tons per acre give the largest yields, but when the amount of manure is limited and the area of land is large, light applications of six to ten loads per acre give the most profitable returns. Very beneficial results may be secured by giving a very light dressing of one to three loads per acre to the fields which are to be plowed for green manure. The manure doubtless increases bacterial action and hastens the fermentation and decay.

To spread manure evenly and finely is very important. The well pulverized and evenly distributed manure as spread by a good manure spreader is more readily incorporated with the soil and gives quicker and greater returns than can be secured from hand spread manure. A number of comparative tests indicate that two tons of manure applied with a manure spreader will have the efficiency of three tons spread with a fork.

The manure spreader not only does away with the hard, disagreeable work of spreading manure but it does the work better and in about one-fourth the time required for hand spreading.

Grain Poultry Feed

A WRITER on poultry feeding in a recent number of Orchard and Farm inveighed against the use of certain manufactured grain feeds for poultry. This criticism was merely a personal opinion and was given for what it was worth. It did not have the sanction of Orchard and Farm, but, like a great many other opinions, was published in order that all-round discussion might be had of the important question of poultry feeds.

Orchard and Farm knows nothing against manufactured grain feeds for poultry. On the other hand, it is possessed of data that are greatly in their favor, and at times has printed such information.

Orchard and Farm is an open forum for the agriculturist, the livestock man and the poultryman. It encourages experts in every line to give the results of their practice and observation, but it does not hold itself responsible for all the utterances of its writers. There is no field in which opinions are so much at variance as in that of agriculture, but it is hoped that by getting the results of experiences from many sources our readers may benefit by such of them as seem best adapted to their individual needs.

Armstrong Nurseries

ESTABLISHED 1889

ONTARIO, CALIFORNIA

Write for Our 1918 Catalogue

Brim full of valuable information—printed in easy-reading type; profusely illustrated. The book you will want to read before buying, whether for commercial or home garden planting.

Fully describes Tropical and Citrus Fruits—Avocados, Loquats, Guavas, Sapotas, etc.—Olives, Deciduous Fruit Trees, Small Fruits, Nut-Bearing Trees, Roses, Deciduous and Ornamental Shade Trees and Shrubs, Evergreen Trees and Shrubs, Palms and Plants.

Tried, True Trees

This is our Slogan—our Trademark—for every year we add to our list of pleased customers who know the value of Armstrong trees—have tried them and found them true. Hundreds of planters in the Pacific Coast States and the great Southwest have learned from actual experience the value of good, dependable trees from the Armstrong Nurseries.

MAY WE ADD YOUR NAME TO THIS LIST? Every available space on the city lot—every acre suitable—should be planted to trees or vines this year. All now know the value of having plenty of fruit for the home as well as the market.

We'll gladly send it -

Armstrong Nurseries,
412 Euclid Ave., Ontario, Calif.

Please send me a copy of your 1918 catalogue. I am planning to plant:

Peaches	[ ]	Apricots	[ ]	Plums	[ ]
Pears	[ ]	Apples	[ ]	Cherries	[ ]
Walnuts	[ ]	Almonds	[ ]	Ornamentals	[ ]

What else? .... How much?........

Name ....

City .... State ....

R. F. D. or Street............................

Make From $5 to $10 a Day As a Tractor and Automobile Expert

Big demand. Best chance in the world for any man to prepare for a big salaried job. It doesn't take but a comparatively short time to be fitted to fill a position that will pay from $100 to $250 a month. We can prepare you as we have over 5000 other men. Our instructors are practical experts. Our students learn by actual experience what can't be learned from books. Our shops are complete in every way with machinery of all kinds—lathes, gear cutting machines, battery equipment, planers, drills, starter devices, tire vulcanizing apparatus, blacksmith tools; in fact you will find everything needed to learn the tractor and automobile business, even to the actual operation of a large Holt Caterpillar in the field and all kinds of automobiles. There is no phase but what we cover. If you are mechanically inclined, here's your chance. Do the work that fits your natural abilities. It means big success for you.

Write for our catalog of 64 pages. Register for one of our courses now and

GET A $50 PRACTICAL TRACTOR COURSE FREE.

NATIONAL AUTOMOTIVE SCHOOL South Figueroa and Eighth Streets Los Angeles, California

Big Seed Company Is Distributing New Catalog

The Aggeler & Musser Seed Company, Sixth and Alameda streets, Los Angeles, California, are about to give their 1918 catalog broadcast distribution, it being their 25th annual, and it is claimed to be the most complete ever published. Among the many new features are departments on Home Garden Work, School Garden Work, Demonstration Garden Work and Field Garden Work. It also includes the "Garden Manual." It contains answers to over 1000 questions and gives invaluable information regarding all varieties of plants and is fully illustrated. Tells the correct tools and implements agriculturists should use to obtain best results. Gives marketing notes on each subject and tells how and when to market. Useful hints are also given on poultry, spraying, fertilizing and the use of insecticides.

The Aggeler & Musser Seed Company will send post prepaid this valuable edition to anyone requesting it

MACHINERY

New and Second Hand

2 to 30 H. P. Gas Engines.
20 to 60 H. P. Steam Engines.
Motors.
Pipe.
Structural Steel.
Wood and Steel Tanks.
Corrugated Iron.
Belting, Pulleys, Shafting.
Wire Rope.
Wheelbarrows and Concrete Buggies.
Concrete Mixers.

We handle all kinds of machinery. Inquiries solicited. We can fill your order the day received.

A. H. SIMPSON Co.
633 Stevenson St.,
Between 7th and 8th Sts.,
San Francisco

Have You Learned that KOW-KURE Can Make a Difference?

It is common knowledge in thousands of the best dairies from coast to coast that Kow-Kure has no equal as a medicine-tonic for cows that are "off color." Such common ailments as Abortion, Barrenness, Retained Afterbirth, Scouring, Lost Appetite and Bunches are promptly eliminated by the active medicinal qualities of Kow-Kure, working on the digestive and genital organs.

As a preventive of disease, the occasional use of Kow-Kure will pay big returns in increased vitality and improved milk yield. Used before and after calving, Kow-Kure will prevent Milk Fever and Retained Afterbirth, and enable the system to resist the other diseases which frequently start at this period.

If you have a cow that is not yielding as she should, something is wrong with her organs of production. Try Kow-Kure and note the prompt improvement in appearance and yield.

Sold by druggists and feed dealers; 55c and $1.10 packages.
Send for free treatise, "The Home Cow Doctor."

DAIRY ASSOCIATION CO.,
Lyndonville, Vt.

SHORTHORNS BERKSHIRES

HOPLAND STOCK FARM

Hopland, Cal.

Registered bulls—yearlings and two-year-olds—bred on same lines as our Grand Champion Cow Sacramento 1917.

Boars and Gilts by Iowama Rival Majestic, a son of Rival Champion.

Prices reasonable on application.

San Francisco Office, 226 Southern Pacific Bldg.

New KEROSENE LIGHT FREE

BEATS ELECTRIC or GASOLINE

Here's your opportunity to get the wonderful new Aladdin Kerosene Mantle light FREE. Write quick for particulars. This great free offer will be withdrawn as soon as some distributor starts work in your neighborhood. You only need show the Aladdin to a few friends and neighbors; they will want one. We give you yours free for this help. Takes very little time, and no investment. Costs nothing to try it.

Burns 50 Hours on One Gallon

common kerosene (coal oil), no odor, smoke or noise, simple, no pumping up, no pressure, won't explode. Tests by U. S. Government and thirty-five leading universities show the Aladdin gives three times as much light as best round wick flame lamps. Won Gold Medal at Panama Exposition. Over three million people already enjoying this powerful, white, steady light, nearest to sunlight. Guaranteed. And think of it—you can get it without paying out a cent. All charges prepaid. Ask for our 10-day Free Trial Offer and learn how to get one free. AGENTS WANTED

MANTLE LAMP COMPANY, 103 Aladdin Bldg., PORTLAND, ORE.
Largest Kerosene (Coal Oil) Mantle Lamp House in the World

The Farmer's Concrete Mixer

SHELDON Batch Mixer Price $11.50 Up

The Sheldon was designed especially for the farm. Highly praised by users. Farmers everywhere call it the ideal mixer. Used today all over the United States. A big success. Small enough to be easily moved—big enough to keep 6 men busy. Low in price. Build your own silo, tanks, troughs, floors, foundations, buildings, etc., out of concrete with a Sheldon Batch Mixer.

Read What These Sheldon Owners Say

I and my hired man laid a feeding floor for my hogs, 24x24, in one day; also put floor in my cow barn. My neighbor liked it so well I am not able to keep it at home.—ANDREW CHRISTENSEN, Hancock, Minn., Rt. 1.

We have used the mixer during past year for putting in cement foundations for a complete set of farm buildings, including silo, and like it very much.—DANA WRIGHT, Jamestown, N. D.

Last year I bought a cement mixer from you with which I am well satisfied. It did not take long for it to pay for itself and I surely can recommend it to anyone needing a big money at a small price.—WM. FARRA, Martinton, Ill.

I am more than busy with my Sheldon Concrete Mixer. Have more work than I can do. I put 210 yards of concrete in one day. I work evenings.—JOHN L. WITTER, Wellsville, N. Y.

The machine works fine. Have already got the job of mixing concrete for the bridges in this township.—JOHN HOSS, Spartansburg, Pennsylvania.

Last spring we purchased of you a set of castings to make a concrete mixer. It was constructed per the plans furnished, and it surely worked great.—D. M. BOMBAKER, Freeport, Ill.

FREE PLANS

Make your own concrete mixer. You can do it at a cost so low you can not afford to mix concrete by the shovel method. Along with our iron parts we send Free Plans and permit for making your own machine. A good way to get a practical mixer at a small expense. Or, we will sell you the complete machine, ready built.

Make Big Money at Concreting

If you buy a Sheldon Mixer for your own use, you can make many times its cost in a season by renting it to your neighbors. Or, if you want to go out with the mixer on contracts, you can easily earn $3 to $20 a day. Our customers are doing it right now. The jobs go to the man with a Sheldon Mixer every time.

Write For Our New FREE Catalog

Shows our full line of mixers which are sold direct to you on strong guarantee. Thirty days trial privilege. No other jobs it. Patented. Two styles, hand and power. Mixes 2 1-2 cubic feet a minute. One man can operate it, but it will keep 2, 3, 4, 5 or 6 men busy. Continuous chain drive. Tilting dump. Easily and quickly moved. All parts guaranteed. Does work equal to $400 mixers. Be sure to get the catalog. Write today.

We Ship Direct from San Francisco

We have just warehoused a carload of Sheldon Mixers in San Francisco to save you freight and time—can deliver your Mixer in three days if necessary.

No Long Wait—Lowest Freight

The Sheldon will pay for itself on first small job. Takes the backache out of concrete. Makes possible those many small improvements that add so much to the value of your land.

SHELDON MANUFACTURING COMPANY, Box 8100 Nebraska, Neb.

Live Stock and Dairy

Will Raise More Beef

TO Orchard and Farm representatives it is reported that a great deal of "pep" is being put into the campaign to raise more beef cattle in California.

L. A. Nares of Fresno, the president of the new State Cattlemen's Association, says that the outlook is promising for concerted effort in this direction on the part of the various associations. By close co-operation, he believes that the cattlemen, large and small, will be able to cope with the situation presented by the war emergency so far as California is concerned.

The members of the new association are asked to lend their support to the measure providing for the recording of brands with the California Cattle Protection Board. Mr. Nares says that the $2 fee for registration and the fees for slaughtering are not excessive and that by the enforcement of the rules livestock men will save many thousands of dollars every year.

The cattle raisers have no fear of the meatless days now observed by everybody in this country, for the reason that Europe has slaughtered 40,000,000 animals and will want all we can raise. Germany took possession of over 2,500,000 French cattle in the conquered territory, so that France is very short of beef and dairy animals, and there has not been enough increase in this country to begin to make up for the great European loss.

Canadian livestock figures for 1917 show a decided increase over the previous year, ranging roughly from 4 per cent for hogs to 47 per cent for horses. Milch cows increased about 13 per cent; sheep, 17 per cent; cattle, other than milch cows, 25 per cent.

The number of all kinds of livestock is also greater than the pre-war average as well as greater than in 1914 when the war began. American farmers must consider, however, that Canada's livestock industry is much smaller than that of the United States. The number of milch cows, for instance, in Canada, at the present time is 3,202,283, which is less than one-seventh the number of the United States.

Good Holstein Record

EARLY DAWN PEEP 2D, a purebred Holstein cow, afforded one of the sensations at the National Dairy Show at Columbus, Ohio, by making a typical Holstein record of 33.52 pounds of butter in a week. While that is a good record it is not an exceptional one for a Holstein cow. It is unusual, however, in view of the conditions under which it was made. The strain of traveling to the show, the strange barn, the crowds of the curious and the excitement incident to the show were all serious obstacles to the making of a record. It is a wonderful record in view of these trying conditions. Her record for seven days at the show was 634 pounds of milk of 4.22 per cent fat, yielding 33.52 pounds of butter.

Early Dawn Peep 2d last year made the semi-official record of 1287.72 pounds of butter in a year. She is owned by Peter A. Small of Chesterland, Ohio.

Early Dawn Peep 2d

Care of the Mare

THE mare will be healthier and the foal stronger at birth if she is used at slow, light work nearly every day. Also parturition will be easier. If it is not possible to work a mare, she should in the summer be turned in an open pasture, where she can get exercise, fresh air, and nutritious feed. Her feed should supply the demand for the maintenance of her own body and also for the development of the fetus.

The ration, therefore, should contain a little more protein and ash than that demanded by a working gelding. The proportions of these should be increased slightly toward the last of the pregnant period. If the mare is idle in winter, most of the feed may be roughage, but a heavier ration must be fed when work is done.

The quantity of feed is determined by the size and condition of the animal, whether thin or fat, sick or well, by the appetite, by the amount of work done, by individuality, condition of the droppings, and whether the animal is easy or hard to keep.

Farmers have reported occasionally that alfalfa causes the kidneys to act too freely, but it is likely that this trouble will not be noticed if the alfalfa does not make up over one-half of the roughage.

Laying hens must have all they want of grit and lime and this must be supplied to flocks in confinement, as they are not able to pick up what they need from the natural earth as do the flocks which have unlimited range.

CUTTER'S
BLACKLEG PILLS

"California's Favorite"
for nearly 20 years

For the Prevention of Blackleg in calves and young cattle

Their superiority is due to nearly 20 years of specializing in "Vaccines and Serums only."

Year In and Year Out they give better satisfaction than any other vaccine made, and the cost of a few cents per dose is cheap insurance against a disease that always takes the fattest and best.

Single Pills may be used for ordinary and range stock.

Double Pills should be used for pure bred and high grade stock.

Use any Injector, but Cutter's is simplest and strongest.

Prices:
10 dose pkge. Single pills $1.00
50 dose pkge. Single pills 4.00
10 dose pkge. Double pills 1.50
50 dose pkge. Double pills 6.00
Cutter's Pill Injector..... 1.50

Insist on Cutter's. If unobtainable, order direct.

Write for new booklet, "The Control of Blackleg." It tells about Anti-Blackleg Serum which cures Blackleg and may be used simultaneously with vaccine to combat outbreaks and safely protect valuable stock.

The Cutter Laboratory, Berkeley, Cal.

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A Lesson From Oregon

By D. O. Lively.

UNTIL last year 70 to 80 per cent of the hogs killed in California came from Oregon. People said only fools would raise hogs where you couldn't raise corn. But it has worked out in Oregon, and California has plenty of feeds about as good as corn.

The tendency to sell feed in the sack in California shows that it is not a success to raise hogs for market until you have a central selling market.

A packer in the East sold out to Armour for a million dollars and was going to invest it in a packing plant in Oakland. But he gave it up because there was no stockyard on which he might depend to get a fresh and regular daily supply. He did not want to pay men to scour around the country and pay growers less to make up the buyers' expenses. Success in getting a hog supply depends on a central market.

The Swine Breeders' Association could do no greater work, or more surely insure its own success, than to get such markets in Los Angeles and San Francisco. I believe that if the association would make this its leading object it would have union stockyards in two or three years. The Santa Fe seems ready to consider the matter.

The association could bring pressure on the Chambers of Commerce of Los Angeles and San Francisco and on the railways and other interested parties and get your central selling markets.

Until such work is done, the purpose of the hog (meat for the multitude) will never be realized in this State.

The question has been asked, "Why are Chicago and Portland hog prices higher than those in California?" I could only answer, "Because there is no adequate market here."

Sugar Curing Hams

WHEN the meat has been cooled and cut up rub each piece with salt and allow it to drain over night. Then pack in a barrel with the hams and shoulders in the bottom, using the strips of bacon to fill in between or to put on top. For each 100 pounds of meat weigh out eight pounds of salt, two of brown sugar, and two ounces of saltpeter and dissolve in four gallons of water. Pour on enough of this brine to cover the meat. In the summer it is best to boil the brine. If this is done, cool it before putting on the meat. The strips of bacon should be left in four to six weeks and the hams six to eight weeks. They are then ready for smoking.

Keep a Few Sheep

HELP Hoover by keeping a few sheep. Why not keep them instead of dogs? It is estimated that it costs $34 to feed a dog one year. On this basis some farmers could keep two more cows or ten more sheep with no more general expense to the farm, if they dispensed with their dogs, as it only costs about $60 or $70 to feed a good cow, and five sheep can be kept on the same amount of food as one cow. The neighbors' sheep would be safer, too.

When you go to sheep raising remember that lambs don't take care of themselves. If you feed them by the thimbleful you can not expect to get money from them by the peck measurcful. When running on fall pasture it takes from two to three bushels of corn per hundred head when on full ration.

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To Every Cow Owner

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This is true whether you are using no separator, some inferior separator, or even an old-style De Laval machine.

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Out in the Orchard

Forced Control of Insect Pests

By William Wood,

Horticultural Commissioner of Los Angeles County.

WHEN we consider the great variety of plants and trees growing in Los Angeles county and that nearly all are host plants for some kind of insect pest, one should not wonder when told that more than a quarter of a million dollars is spent every year in their control.

It should not seem strange, if among all of the thousands of growers, there were some who through lack of means, or through shiftlessness or poor management, allowed their trees and plants to become infested with insect pests and diseases to the great detriment of themselves and a menace to the surrounding community.

Whenever this condition exists, many who would control their pests under more favorable conditions, become discouraged and help to swell the list of those with infested and unprofitable crops.

Fortunately, the number of these is small when compared with the whole; and for this reason, our State Legislature has, during the past thirty years, enacted horticultural laws meant to protect those who would help themselves against the few who would maintain a nuisance that is a detriment to themselves and a menace to the surrounding community. But like most laws, defects were found that often prevented their enforcement. Some of these defects were eliminated from time to time, but not until the last session of the legislature was there any real, substantial change made that would strengthen the horticultural laws and make them adequate to cover every emergency that might arise.

The addition to section 2319c of the Political Code which provides that no quarantine shall be established, maintained nor enforced except by the State commissioner, has done away with all the different county quarantine ordinances; making a uniform quarantine regulation throughout the State, thereby removing just cause for complaint by the nurserymen. This new law makes a lien for forced horticultural work take precedence over all claims except taxes and has removed the greatest difficulty with which the county horticultural commissioner has ever had to contend.

During the first part of the year when there are but few shipments of nursery stock moving, the inspector spends his time in the groves that will need treatment for the control of insects in the part of his district that is to be treated that year.

About a month before the time for treatment work, the inspector begins to get the data in regard to owners and locations of property to be treated and sends the information into the office. Our searcher looks up the records of each piece of property, maps it, gets the correct legal descriptions and the name and address of the owner to be notified.

The time given the owner in which to do the work is usually ten days and if at the expiration of that time the work is not done, as soon thereafter as the county outfits can do the work, it is done and the data relating to it is sent in to the office where the cost is estimated and bills promptly sent to owners. A very large per cent of the work we do is promptly paid for.

Our fumigators and sprayers are paid twice a month and for all bills for work not paid by the owners in thirty days after the county has paid for the work a lien is filed against the property to secure to the county the cost of the work.

Napa County Cherries

By W. D. Butler

Horticultural Commissioner, Napa County, California

SEVERAL Napa county cherry growers have been doing some experimenting in regard to growing the tree. It has been held that a cherry tree need not be pruned while growing. It has been well demonstrated that a rounder, more bushy and lower tree can be developed by a judicious use of the shears.

Another thing has been tried and found successful and that is to top old trees that have become too high. They respond very well and will in two years form nice new fruiting tops.

The writer would recommend the use of Mazzard seedling stock planted direct in the orchard and then budded or grafted in the first year's growth several inches from the main trunk. This leaves the trunk and main crotches of the wild stock which is more hardy and resistant to adverse conditions. This wild stock will seldom sour sap, and when that occurs it is generally in the main trunk or the crotches. Also it is not nearly so subject to sunburn and borer attacks, and if struck by a cultivating instrument and "barked" it will heal over more quickly.

No time will be lost for it is the root system that makes the tree, nor will it cost more, for seedling trees are 30 or 40 per cent cheaper and budding can be done for 4 or 5 cents per tree.

As to climate Napa county is well favored for the growth of the cherry. We seldom have burning hot weather, strong winds, or too foggy weather. I think it is perfectly safe to claim that with proper soil, planting and care a Napa county cherry orchard is as safe and profitable horticultural venture as may be found in the State

Fine Poultry Record

THREE years ago a Ray county, Missouri, farmer attended farmers' week at Columbia and specialized in poultry. This year he will go back to tell of his success as a poultryman. In twelve months his hens laid 141 eggs apiece. He sold and consumed $116.60 worth of poultry and $468.84 worth of eggs. The feed cost was $243.05 leaving him a labor income of $342.39 from his chickens. During the last twelve months his poultry flock of 250 birds has returned him a labor income above the feed cost of $450.00. The feed was charged at the retail prices that obtained during the month it was fed.

This man has done no more than any farmer can do if he will follow out the best methods in caring for his poultry. University lectures and demonstrations will help other poultrymen to increase the efficiency of their flocks.

Home Garden

By Mrs. E. E. Paquette

1118 Poli St., Ventura, Cal.

CHRISTMAS is over and the fall rains are starting new growth, so let's get busy and have a regular house cleaning in the garden.

Now is a good time to manure or lime all vacant beds or borders. Spade well so as to have them in good shape for the spring planting. If the bed is to lie vacant for a time do not rake it after spading. Let it lie rough and open. This gives the soil a chance to air out and does much toward making it loose and productive.

Get rid of all rubbish. Either rake and burn it or pile it on the compost heap. I like to burn all the leaves and trash at this time of the year for it gets rid of some of the insect pests, both in the form of eggs and dormant insects. If you want to add the leaves to the compost heap bury them deep or what is better scatter lime over the heap.

Pansies planted in the seed boxes earlier in the fall should be just right for transplanting in beds now.

Also plant a bed or row of the earlier sweet peas. Sweet peas like a cool damp period for their first growth, and seeds planted now are often the most productive, the plants having an ideal atmosphere for their first growth and making fine strong plants and extra fine bloom.

Be careful in your house cleaning and do not trim or snip the tips of blooming shrubs, such as syringas, snowballs or bridal wreaths. Every bit of dormant wood cut off and thrown away now means that much bloom wasted. And do not be in a hurry to prune any tender vines. A late frost may nip them and you will not have any left to prune.

Your local seedsman will tell you what is best in the way of small seeds to plant. I never have much success with January seeds excepting some of the native wild flowers and seeds planted in a lath or green house. As a general thing it is too cold and damp for small seeds.

Plant a row of gladolius now for early spring bloom. Also plant callas and Easter lilies.

January is one of the best months for rose planting. The plants are in a semi-dormant condition and the air moist and they make a good strong root system if planted now.

If you have plants that have become rusty and diseased it is a good plan to dig them out bodily and put in new ones.

Bulbs and Iris

"I was prevented from planting all the bulbs I had intended to plant. Is it too late to plant them now? If so, is there any way I can save what I have?"

It is not too late to plant bulbs, in fact anemones, ranunculus and several of the spring blooming bulbs do finely if planted early in January. Narcissus and even hyacinths will bloom if planted now.

It is not too late to make an iris bed. Do so by all means if you have none. There are so many wonderful iris flowers that it is almost impossible to tell you what to plant. Would just say plant all you can get. Plant some of the Spanish and English iris. They are small, inexpensive bulbs, and the blooms are dainty and effective for cut flowers. Also plant some of the rare onocyclus type if you can afford them. Some are expensive, but they are very beautiful. Send self-addressed stamped envelope or just a stamp and I will send names of [illegible] in iris and also send a list of [illegible].

[illegible] and [illegible] days here [illegible] than defeat[illegible] days for our [illegible]

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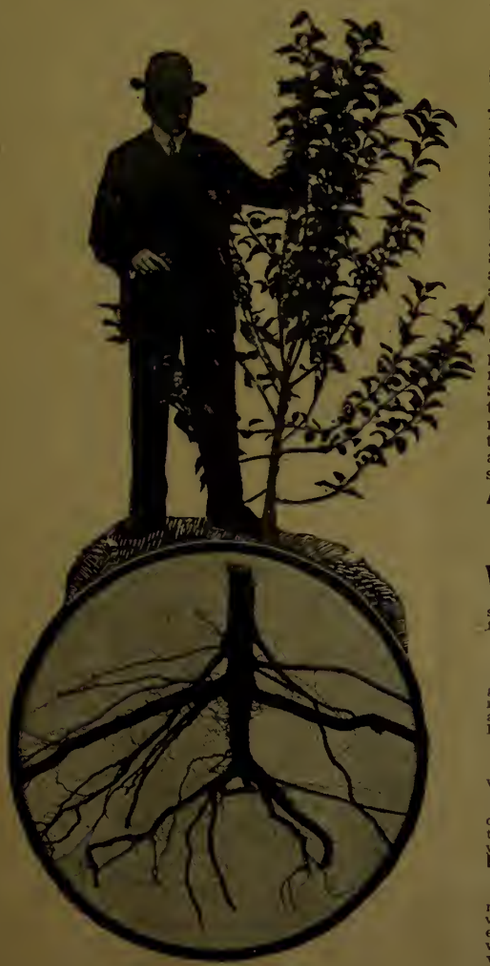

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Sacramento Pears

By Howard G. Kercheval,

Horticultural Commissioner, Sacramento, Cal

DURING the past season a great many tons of Sacramento County pears were wasted on account of lack of labor to handle the crop and it has been suggested, in addition to the canning activities, that several drying plants be established adjacent to the large pear areas.

This would result in the saving of considerable fruit that can not be harvested in time for either Eastern shipment or the canneries.

This would also afford an opportunity for the use of schoolboy labor, which has not as yet proven to be quite satisfactory in this industry.

Sacramento County ranks first in the production of pears in the State of California, there being over 5000 acres planted, mostly in the delta regions of the Sacramento and American River districts.

While a great bulk of these pears, which are mainly Bartletts, are shipped to the large Eastern markets, there are still a great quantity that are handled by local and outside canneries, there being three large canneries in the City of Sacramento, while more than 150 carloads are shipped to other canneries in the State.

For the past several years the prices obtained from the canneries have been fairly satisfactory, ranging from $30 to $45 per ton.

However, with the increase in production, it has become necessary for the growers to form themselves in an organization known as "The California Pear Growers' Association."

It is hoped as a result of this movement that much better prices can be obtained by pooling the crop, as well as greater efficiency in spraying, better cultural methods and more careful harvesting.

The prices obtained should be commensurate with the continual increased cost of production.

Spraying Pear Trees

By Claude Van Dyke.

OUR pear orchards, when properly sprayed to control scab, need no dormant or early winter spraying. It is found that after the trees have been sprayed and resprayed several times with fungicides and insecticides which go to complete the scab campaign, a timid little pernicious scale will never get settled nor will a particle of moss get started. Likewise a fall spraying is of no value in preventing the attack of the disease the following spring. I make this statement since it has proved to be impossible to eradicate the spores of the fungus entirely and work done during early winter must simply be repeated later. It is more economical then to save the material and energy for the spring drive which starts with the growing season.

All available materials in the nature of spray combinations, including commercial preparations with both sulphur and copper sulphate as basic ingredients, have been tried. In the successive use of these the unusual has happened. Instead of each grower finding some different material with which he had satisfactory results, practically all combinations were discarded as unsatisfactory and the survivors were lime-sulphur and Bordeaux mixture.

In this county, the past three years have marked the decline in popularity of the copper sulphate and lime combination, and the increasing favor of the lime sulphur solution. There are several factors which augment the growing favor of the latter aside from its fungicidal value. It is less expensive, simpler to prepare and easier to apply. It is generally conceded, however, that there is a greater chance of "burning" through its use than through the use of the Bordeaux mixture. From the comparative percentages of clean fruit resulting from the use of these two fungicides the writer is unable to say one is more effective than the other. There is apparently no choice.

What is true with the control of many other fungus diseases of fruit holds true with pear scab in the time of application of the fungicide. This is of first importance. Owing to weather conditions it is not always possible to complete the work at the precise time which is thought to be best; but the effort of the grower should be to do the spraying in three successive periods as nearly as possible as follows:

First spraying: Using four gallons lime-sulphur solution (35° Baume) to 100 gallons water, applied as the bud clusters are quite open but well before the blossom buds are open.

Second spraying. Using three gallons solution to 100 gallons water applied as the blossom petals are beginning to fall.

Third spraying: Using three gallons solution to 100 gallons water applied about one week later.

As the fungus is often visible before the blossom petals have fallen it is necessary that the first application be made before blooming and this is done when the buds are most accessible. Arsenate of lead for codling moth control is combined with the last spraying for scab. It is impossible to find all the bud clusters just right at any one time as some are always slower than others in opening. As to the best time during this period of a few days the operator must be guided by his own judgment.

I might add, in conclusion, that Ukiah Valley had several absolute proofs this summer of the success possible in combating pear scab. One of our larger growers on a ten-acre bearing orchard had 5 per cent of the pears showing scab injury. The same grower left one small plot of about 100 trees unsprayed and 92 per cent of the pears were scabby. Several other examples as striking as this can be cited. We believe that the ordinary attack of this fungus, under normal weather conditions, can be completely controlled. We also believe that the method of control, under weather conditions particularly favorable to its development, and adverse to spraying operations, has not been found

---

The John Muir Trail in the Sierra national forest, which has been under construction for the past three seasons, is a monument to John Muir. It is being built by the forest service with State funds under the direction of the State engineer. When complete it will be an easily traveled route along the main ridges of the Sierras from Yosemite to Mt. Whitney, and will open up to tourists and recreation seekers some of the finest scenery in the United States.

Reports indicate that the new winter wheat crop, just planted, is nearly one-fourth larger in area than that planted a year ago.

Barley is ranked next to oats as a feed for dairy cows. It should be rolled, as should oats.

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The Life of Chilean Nitrate Deposits A. D. 1917

Total Nitrate deposits in Chile	720 million tons
Estimated life of deposits at present rate of World's consumption	300 years

For Reliable Information Write

Dr. WM. S. MYERS, Director
Chilean Nitrate Committee
P. O. Box 248, Berkeley, Cal.

REDWOOD TANKS

A tank, 5x2, $9; a tank, 7.4x4, 1000 gal., $23; a tank, 8x5, 1500 gal., $31; a tank, 5x4, 500 gal., $18. Tanks in stock up to 10,000 gallons. Thirty-five years in this business in Stockton. Try my improved non-shrinkable tank. Reference, Farmers' and Merchants' Bank, Stockton. I cut out the agent. Phone 2957.
R. F. WILSON, STOCKTON, CAL.

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month. Address Orchard and Farm, "Examiner" Building, Los Angeles, Cal.

Own a Tractor

If you can contrive to do so, you should buy a tractor. There are farmers who think they can't afford one, but as a matter of fact many of these same men cannot afford to be without one.

If a tractor man can plow more land before breakfast than his horse-driving neighbor can plow in all day, what is there to be said for horses when it comes to turning furrows?

Still old Si Corntassel has his doubts. He "ain't a-goin' to buy none o' them new-fangled rigs till somebody can show him just where they beat his old bay team. Why, a man gotta be an ingineer to run one of 'em, they'll git mired in damp ground, an' what in Sam Hill are you goin' to do on hills?"

But the tractor goes right ahead in spite of old Si, tearing up the ground, disking, harrowing, mowing, threshing and doing about everything it is advertised to do.

Mighty good in hot weather, old Si will have to admit. While he was frying in his own fat out in the field last summer and was having to unhitch his horses and quit work, his tractor-owning neighbor was going right ahead with very little wear to his physical system and none at all to any animal.

They Are Immune to Heat

"With the mercury up to 110 in the shade," says one tractor enthusiast, "some of my horse-working neighbors simply had to leave their jobs. Some of them ran their harvesters at night, but they made bad work of it at that. But our ten-twenty rambled right along without any regard to the terrific temperature.

That's the way it goes. And as old Si looks over the fence he is learning something every day.

But, of course, you can't trust a hobo to run an expensive machine. You can't trust the man who drinks to run it. You can't trust a man who is unable to read an instruction book intelligently. To run a tractor or anything else you must have common sense and you can't let your wits go wool-gathering.

Don't Employ Cheap Operators

A big rancher up Fresno way told me the other day that his hired men had ruined $10,000 worth of tractors in one season.

"I'm going back to mule teams this fall," he said.

"How much did you pay those men?" I asked.

"Four dollars a day."

That was the answer. If he had paid $6 or even $5 he would have saved a lot of money. Some men assimilate all the necessary knowledge about running a tractor in a week, but others can't learn in a year. And if he did learn he would be banging into rocks or stumps while he was day-dreaming about what he was going to do with his money Saturday night.

A good make of tractor, adapted to the work in hand, can be run far more cheaper than a team of horses, year in and year out, and what you don't pay out for good intelligent labor you are going to pay out in repairs every time. For, if your machine breaks down because of your lack of foresight in hiring a cheap, dull-witted farm hand to run it, you may lose a week or ten days right in the middle of the busy season while you are harvesting your crop.

No Ice Needed—This Iceless Refrigerator Keeps Food Better Than Old-Fashioned Refrigerators

Most perfect cooling system. Foods keep exceedingly fresh in hottest weather; keeps cool by evaporation; made entirely of cement, reinforced; made in sections; easy to set up. Shipped anywhere. Our steam tempering process makes cement almost as hard as iron; does not warp or twist; sanitary in every way; not affected by acids nor other strong solutions; does not rust; is antproof; revolving cement shelves; inside enameled throughout; perfect ventilation; no repairs; pays for itself in two seasons; only refrigerator of kind made; two sizes; women praise it; demand doubled every year; impossible to sell through dealers at present prices; sold direct.

Mrs. H. H. Welsh of Del Rey, Cal., writes: "I am very glad to be able to say we are thoroughly pleased with your Iceless Cement Refrigerator. It is all you represent, and more, too. I am keeping 23 pans of milk in it (June 13), and find it very satisfactory in every respect. You can put me down as recommending it highly."

FREE The "Iceless Era," devoted to interests of Iceless Cement Refrigerators—Free.

Pittman - Hampton Co., Manufacturers, Selma, Cal.

Lactein—a Tonic and a Food
For Chickens and Hogs

Lactein is pure fresh buttermilk, with the water taken out, then processed and modified so it will keep in any climate indefinitely. It makes healthy, vigorous fowls, more weight, firmer flesh and more eggs.

One gallon of Lactein is equal to 40 gallons of the best buttermilk for chickens or hogs.

Shipped prepaid on receipt of price.
52 gallon barrels at 70c per gallon, $36.40 per barrel.
25 gallon one-half barrels at 75c per gallon, $18.75 per barrel.
10 gallon kegs at 80c per gallon, $8.00 per keg.
5 gallon kegs at 85c per gallon, $4.25 per keg.

Money back if not satisfied.

LACTEIN FOOD COMPANY
402 Hearst Building, San Francisco, Cal.

SHIP US YOUR TURKEYS

We are the largest dealers in San Francisco and need all the turkeys we can get to fill our orders. Also wholesale dealers in all kinds of live and dressed poultry, hogs, calves, etc. Write, wire or phone for market information and quotations. We will be glad to place your name on our mailing list.

L. SCATENA & COMPANY Established 1878. 104-106 Washington St., San Francisco.

Make more Money Pull big stumps by hand

Showing easy lever operation

Clear your stump land cheaply—no digging, no expense for teams and powder. One man with a K can rip out any stump that can be pulled with the best inch steel cable.

Works by leverage—same principle as a jack. 100 pound pull on the lever gives a 48-ton pull on the stump. Made of the finest steel—guaranteed against breakage. Endorsed by U. S. Government experts.

HAND POWER **K Stump Puller**

Write today for special offer and free booklet on Land Clearing.

Walter J. Fitzpatrick
Box 316
182 Fifth Street
San Francisco
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GOING TO BUILD?

Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.

Contractors' & Builders' Supply Co.
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Golden Seal Plants

2-year-old, $20 per 1000.
WILLOWBROOK FARM
R. F. D. No. 1, Redwood City, Cal.

Did You Ever Keep a Record of Your Cows?

If so, you have no doubt felt the need of a convenient, simple and handy record sheet. Thousands of dairymen throughout the United States are today using record sheets. We have a record sheet that will fill your every want.

If you have never kept a record, now is the time to begin. You can never be as successful a dairyman without dairy records of your cows as with them. Send for enough to run a year—one a month—and you will never again do without them.

Daily Milk Record Sheet

For ten cows, size 10 ins. by 17½ ins.

6 Sheets for $ .25, Postpaid
15 Sheets for $ .50, Postpaid
25 Sheets for $ .75, Postpaid
50 Sheets for $1.25, Postpaid
100 Sheets for $2.00, Postpaid

If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.

Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

Address

Orchard and Farm
Examiner Building
Los Angeles, California

Still Better Tillage Tools

Deering—McCormick—Osborne

HAVE you seen the **New Third Lever on a Deering, McCormick, or Osborne** Three-Lever Disk Harrow? It is a depth regulator. With it you raise and lower the inner ends of the disk gangs to meet *all* field conditions. You do this quickly and easily, without in any degree destroying the rigidity of the gangs, for which International Harvester disks have always been famous.

Have you seen the **New and Exclusive Attachment of the Tandem?** This is another feature we are proud of. The connecting braces tie to both leading gangs, extending from the tandem in such a way that the gangs *must* cut the ridges left by the leading gangs. In turning corners, the sliding connecting braces allow natural flexibility and following of the tandem without crowding sidewise.

International Harvester disk harrows have done top-notch good work for many years. They have built-in weight boxes, adjustable forecarriage, 4-wear wood bushings, tall hard oilers, etc., etc. This year they are simply unbeatable.

When you want seed beds that are right, be sure your tools — disk harrows, peg and spring-tooth harrows, cultivators, etc. — are **Deering, McCormick** or **Osborne.** Write us.

International Harvester Company of America
(Incorporated)

Crawford, Neb. Denver, Colo. Helena, Mont. Los Angeles, Cal.
Portland, Ore. San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah

This Saw Cuts 25 Cords of Wood in One Day

Write for our booklet "How Dan Ross Cuts 40 Cords a Day."
It is absolutely guaranteed —hundreds in daily use
Delivered anywhere in the U. S. A only

$165

Wade's Gasoline Wood Saw
4 H. P. Engine (Portable)

This wonderful invention does TEN TIMES the work of TWO MEN in the woods.
With it you can make money out of your wood simply through the immense saving in time and labor. One man can handle it on a log and two can move it from log to log. Will cut a 40 inch log in five minutes. Write us today.

R. H. WADE & CO.
SINCE 1865
345 Hawthorne Ave., Portland, Ore.
910 N. Howard St., Spokane, Wn.

A MESSAGE TO FRUIT AND VEGETABLE GROWERS

THE A. A. A. EVAPORATOR MANUFACTURING COMPANY, 2371-73 MARKET STREET, SAN FRANCISCO, CAL., desires to get in touch with Fruit and Vegetable Growers in order to build one Modern Evaporating Plant on a Co-operative Basis in every district on the Coast. We are willing to invest a part of the capital necessary ourselves. If you will make money out of it for you as well as for ourselves. Your neighbors might be in have Fruit and Vegetables you cannot sell in the fresh state, come in with us and we the same boat; let us come together and talk the matter over. If you are in business to make money, write us for particulars, or, still better, come to our Office and Factory and we will show you our proposition.

If readers of this publication do not find advertised just what they are looking for, write Orchard and Farm, Examiner Building, Los Angeles, and you will be put in touch with reliable firms handling the goods desired.

Imperial Valley Cotton

Water Shortage a Thing of the Past.

By F. W. Waite,
Horticultural Commissioner, El Centro, Cal.

IN THE Imperial Valley during the past season there were 110,000 acres planted to cotton. The crop was below the normal, due to the shortage of water, mainly caused by the district being kept from constructing a weir across the river.

This department fully believes that water shortages are things of the past, as construction is going on by the directors of the irrigation district to prevent any further shortage.

During the several seasons past there have been few failures, a number of partial failures, and many successes—the same conditions that exist in all lines of enterprise. The failures were mostly due to the poor condition of the ground for irrigation, as well as poor soil for cotton and also to lack of experience.

Season Is Long.

As cotton is a sun plant, the climatic conditions are all that could be desired — practically no rain, ample water for irrigation, warm nights, sunlight and heat—in fact, all that seems necessary to produce the maximum yield of cotton for those who know how. On account of the continuous sunshine, there is a very long season for picking, or from September to February or March.

As to insect pests, there are a few common insects that do a small amount of damage. Those of enough importance to mention are the tarnished plant bug (Lygus pratensis), cotton leaf perforator (Bucculatrix sp.), cotton boll worm (Heliothis obsoleta), crickets, grasshoppers and plant lice. These insects do not do enough damage to warrant the use of any control method excepting when the grasshoppers in some particular locality get too numerous.

In reference to the very serious insects, the boll weevil and pink boll worm, we have neither. Many parties have said that the cotton boll weevil cannot live in this climate, but this department takes the stand with men of knowledge and experience along this line, that it is possible and probable that an insect will live where the host plant lives; therefore, we are not taking any chances and guard all avenues of approach. A State quarantine is in effect, prohibiting cotton seed to enter the State from anywhere excepting from Maricopa County, Arizona, and for experimental purposes.

Success With Long Staple.

Several varieties of cotton have been grown, but the principal ones are Upland (short staple) and Durango (long staple). The growers are about evenly divided in growing the above varieties.

Egyptian cotton (very long staple) has been grown in the Southwest since 1902 in an experimental way. The last few years it has been grown commercially and very successfully. In the Salt River Valley, near Phoenix, Arizona, Egyptian is grown exclusively, and with the price of this cotton about three times higher in value than short staple and also ideal conditions for growing Egyptian, I predict that the time will come when it will be grown exclusively in this county. The yield is not usually as large as short staple, but a bale and a half has been grown in this county under the direction of the United States Experimental Station located at Bard. It costs about the same to grow, but two or three times more to pick.

A few growers have grown two bales of short staple to the acre, some a bale and a half, and many one bale, which gives an idea what the possibilities are to those who know the business. Present prices are 24 cents for short staple, 34 cents for Durango, and 80 cents to $1 for Egyptian, and $50 a ton for cotton seed.

California, according to the Census Bureau, United States Department of Commerce, has the highest yield per acre in the United States, or 400 pounds lint. The average for the United States is 156 pounds. The average price per pound in California in 1916 was 20 cents, or the highest price in the United States, the average price being 19.1 cents. The average return for California was $80 per acre, while the average return in the United States per acre was $29.79; therefore, California leads again. This proves that California can and does produce the finest cotton in the United States.

There are thirty gins, two compresses, and three oil mills in the valley and one oil mill in Los Angeles, which is equipment enough to handle all the cotton which could be produced on 300,000 acres.

Table Grape Profits

NOTWITHSTANDING the fact that the San Joaquin County grape shippers had to contend with a serious car shortage and acute labor trouble for the season recently closed, the gross amount obtained for the table grapes grown in that section from the Eastern markets and local wineries has just been estimated to total $4,189,240.

The following table, compiled by F. E. Merrill, special Southern Pacific representative, shows that 3066 cars left for the Eastern market in 1916 and 3255 for the 1917 season, or an excess of 189 cars for last season:

	1916	1917
Lodi	1620	1529
Woodbridge	426	438
Victor	220	301
Acampo	343	328
Armstrong	25	2
Lockeford	10	25
Kingdom	0	1
Clements	6	19
Blacklands	239	216
Norton	19	30
Ampere	96	77
Woodlake	8	3
Kenefick	4	2
Harte	4	30
Brack	34	188
Thornton	6	6
Pioneer	0	60
	3066	3255

On an average 1000 crates are loaded into a car. With each crate selling at an average of $1.15, f. o. b. New York, the gross amount paid by Easterners for the table fruit amounted to $3,745,500. Deducting all expense, the growers cleared 30 cents each on the 3,255,000 crates, or a net profit of $976,500.

The grapes that could not be sent to the Eastern market, or 37,145 tons, were sold to the local wineries for $445,740. This with the $976,500 obtained from the Eastern market, gives the local vineyardists a net profit of $1,422,240.

Local grape men believe that had there been enough cars to haul all of northern San Joaquin county's immense crop East, a glutted market would have been the result.

Honey and syrups instead of sugar will make our victory just as sweet—and bring it much sooner.

Now's the Time

to get in your dormant or winter spraying. If done properly—this will prevent the accumulation of certain insect and fungus enemies; will clean your trees and soften the bark; and will keep the trees in better health, vigor and fruitfulness. For this purpose there is nothing so effective as

Crude Oil Emulsion

Remember—Universal Orchard Sprays are made by us from the finest materials, under expert supervision. They are quick and sure. And—*they penetrate.*

Among the other sprays manufactured or distributed by us are;

Dormant Soluble Oil
Bordeaux Mixture
"Triumph" for Citrus Trees
Lime Sulphur Solution
Arsenate of Lead
Miscible Oil No. 1 for Olives
Miscible Oil No. 2 for Thrips

Order now—don't wait until your trees are laden with deadly insects.

Never hesitate to write our Service Department—in charge of Paul R. Jones, Expert Entomologist. His advice is dependable—and it's yours *free.*

Insecticide Department

Balfour, Guthrie & Co.
350 California Street
San Francisco
816 Higgins Building
Los Angeles

UNIVERSAL BRAND
ORCHARD SPRAY

CANN'S Seed Potatoes

Certified under State law inspection. Cleanest and best seed potatoes you can buy.

Twenty-one different varieties.

Sure to grow—and produce big crops of the choicest potatoes.

Oregon - grown. Ready for December delivery.

POTATO CATALOG FREE—Tells you all about potatoes and potato growing.

ARTHUR CANN
SEEDSMAN,
1[illegible] S First San Jose, Calif.

Washington, Idaho, Oregon

THE following reports of crop conditions in the Pacific Northwest are made by agents of the American Steel and Wire Company up to December 15, 1917:

Eastern Washington and Northern Idaho—Very little improvement on wheat conditions. There has been very little rain in general. Much interest is shown in corn for the coming year. The recent corn show held in Spokane has proved what can be done with this crop. Many farmers who a few years ago ridiculed corn growing are now devoting their farms exclusively to this crop.

The potato situation is growing serious. Few growers are putting their crop on the market, feeling that they must hold for high prices. This has resulted in the consumer reducing his wants, all of which means loss to the grower later on. Producers of milk are combining and will themselves distribute their product to the consumer as the present price of 16 cents retail per quart is prohibitive. The new method will enable the consumer to buy his milk at 10 cents per quart. Apples are all marketed and brought a high price. Culls bringing 40 per cent more than in preceding years.

Western Washington—Potatoes quoted at $35 to $40 per ton, with the greater proportion still in the hands of the farmers owing to car shortage. The oat crop sold for from $40 to $50 a ton which has given unusual encouragement to increase oat acreage the coming year. Hay and cattle feed is very high but nevertheless the prices secured for milk and butter are leaving a large margin for the producer. Hay is quoted at $28 per ton; butter fat 54 cents per pound.

Western Oregon—Another week of favorable weather has just passed. This is very good news as it means more fall plowing, and a larger winter wheat acreage. The rainy season is about due and when it once sets in very little can be done until spring.

San Bernardino Spuds

BY ITS president, D. M. Cooley, the San Bernardino Valley Produce Association makes the following report on potato production in that section to the United States Department of Agriculture:

"The total acreage planted for our fall crop of potatoes was 2713 acres, the total estimated yield, 10,902,700 pounds, or two tons per acre. To say the least, this shows a remarkably poor yield. We have the report from some districts where the acreage was large and the yield running less than 10 sacks per acre. The estimate was very carefully made by the men in the field, was then revised by all the members of the Board of Managers and we find our partial failure due to the following causes: Forty per cent of the light yield is due to poor seed, 30 per cent is due to the lack of experience and 30 per cent is due to the unusual hot weather during the summer, lack of proper irrigation, and the extremely early frost.

"We estimate that 2,000,000 pounds will be required for our spring planting and that a large quantity will be necessary to feed our people during the months that the potatoes can be properly conserved. After deducting seed and the necessary amount for home consumption, we will have, in round numbers, 200 cars to export."

Spray Now!

Clean up your trees! Rid them of moss and scale! Go after big crops of good fruit! Growers all over this State are busy with their winter spraying—and these are the growers who will get the money in harvest time. If you haven't a good sprayer—pick from the complete line of

BEAN Power Sprayer

Built in a variety of sizes from the sturdy, efficient little one-man, one-horse Bean Eureka to the big Bean Giant Triplex, which supplies several lines of hose.

All are BEAN QUALITY through and through—It's simply a matter of how large your orchard is.

You'll get Bean dependability—reliability—efficiency—sturdiness—in any Bean outfit you buy.

Better see your nearest Bean dealer at once—or send the coupon to us without delay. The quicker you clean up your trees the better.

You can't afford to miss any clear weather until the work is done.

BEAN SPRAY PUMP CO.,
225 West Julian St., San Jose, Calif.
Gentlemen—Please send me your catalog on the
POWER SPRAYERS — ACCESSORIES
HAND PUMPS — SPRAY MATERIALS
Name . . . . . .
Address . . . . . .

Bean Spray Pump Co.,
225 West Julian Street, San Jose, Calif.

How will it Work in the Field?

The first cost of a spray-rig is not the only feature to consider. Nor do good looks make it a good sprayer. What you want to know is—*How will it work in the field?*

Will it do everything you expected and paid your money for?

The FIELD-*OSPRAYMO*

Sprayers are built primarily to give *years of service.* They have dependable PUMPS and engines, strong frames, sturdy tanks, efficient agitators. They are *good* sprayers first. Their "snug" appearance is more or less incidental—Insist on the OSPRAYMO TRADEMARK.

OUR 1918 FREE CATALOG

shows the complete line in detail. Write for it today. For ten cents we will include the handsome Spraying Guide "Why and How of Orchard Success."

FIELD FORCE PUMP CO.
Dept.
ELMIRA, N. Y.

MORSE'S Onion Seeds

yield best when planted in December and January. They will do well even if planted later, for they are field-grown and soil-tested—strong and hardy—full of germinating power.

Onion seeds are no good if more than a year old. When you buy Morse's Onion Seeds you are sure of getting fresh ones grown on the Morse farms. The same high quality found in these onions is found in Morse's other seeds for field and garden—from every day kinds to the choicest—by the dime packet or carload lot.

This year of all years, when prices for your farm products will be so high, you can't afford to gamble with poor seed. Buy Morse's and be sure of the best. Write now for quotations on onions, alfalfa, and other field crops.

The *Morse 1918 Garden Guide* is ready—accurate information about seeds, planting, culture and vegetables. Your copy will be mailed *free* upon request.

C. C. MORSE & CO.
739 Front Street San Francisco

AT the recent San Francisco Land Show Everett Holliday of Ukiah, California, won the first prize for onions grown from Morse's Seeds.

TIRES 1/3 LESS

There's a way to obtain high-grade tires at manufacturers' prices. Write and we'll tell you. Freshly made tires, every one

Guaranteed 6000 Miles

(No seconds). All sizes, non-skid or plain. Shipped prepaid on approval. This saving on guaranteed quality will open your eyes. State size tires used.

SERVICE AUTO EQUIPMENT CORPORATION
966 Westover Building, Kansas City, Missouri.

Florida Muck Land
Richest on Earth

Decomposed vegetation of centuries. Exceptional tract of 400 acres in Central Florida for sale. Adjoining lands produced 100 bushels corn and 90 barrels early potatoes per acre. No fertilizer used. Weeds grow fifteen feet high. Tract is offered at absurdly low figure for quick sale. Photo of crops and description free. R. L. Moss, Saint Augustine, Florida.

Valuable Books on Poultry

Poultry Breeding and Management—By James Dryden. This book is written for the man or woman on the farm who is interested primarily in making poultry pay. The author's experiments at the Oregon Agricultural College, which have resulted in the creation of phenomenal strains of layers, among them a number of hens with records of 300 eggs in a year, and several with records of more than a thousand eggs in less than six years' laying, as well as chapters on systems of poultry farming, housing, feeding and incubation, are fully treated. Illustrated. 5½x7½ inches. 416 pages. Cloth. Net $1.60.

Living From Eggs and Poultry—By H. W. Brown. The author addresses his remarks entirely to beginners in the business who have a limited amount of capital and experience. Unusual attention is given to the small, but important, details, from hatching time to the time the produce is marketed. Illustrated. 188 pages. 5x7 inches. Net, 75c.

Address Orchard and Farm, Examiner Building, Los Angeles, Cal.

POULTRY

Wheatless Chicken Feed

PRACTICALLY the only wheat obtainable on the market today is what is known as wheat screenings. This makes excellent poultry feed when obtainable, but the demand far exceeds the supply.

We have found one of the best wheatless rations to be as follows:

Eighty pounds cracked corn or cracked milo, and 20 pounds of oats mixed well to make up the scratch feed. The dry mash consists of 100 pounds of bran, 100 pounds mealed alfalfa or cut clover, 100 pounds of middlings, and 40 pounds of beef or fish scraps.

The scratch grain is fed both morning and evening. The mash may be fed either dry or wet or both methods may be used. It may be put before the fowls at all times by using self feeding hoppers, and in addition some of it may be fed at noon wet—all the fowls will clean up in ten or fifteen minutes. Alfalfa meal and cut clover are excellent feeds to be used in cheapening any ration, and they take the place of green foods very satisfactorily.

If it is impossible to secure middlings the following mash ration may be used: 100 pounds of bran, 100 pounds of corn meal or milo meal, 100 pounds alfalfa meal, and 50 pounds meat scraps or 30 pounds each of fish and meat scraps.

These rations are especially for winter use. In the summer time fowls are generally able to forage all the green food necessary and are also able to obtain a large amount of any protein necessary in the form of insects. This is especially true of chickens that have access to a range. Birds that are penned throughout the year will need these different food elements furnished them at all times. It is just as necessary and helpful to use a variety of feeds in making up a poultry ration as a variety of foods for human consumption. It whets the appetite, gives the poultry a chance to choose the kind of grain they want to some extent, and serves generally to keep them in a better physical condition.

The rations given may be changed to include the grains available in any community. The only care needed being to use the different grains in the right proportion to make a balanced ration.—C. R. Adamson.

A Good Hen Record

ONCE in a while Orchard and Farm hears of a good hen record that shows the poultryman has got his system down to brass tacks. Charles E. Edmondson of Tulare County, Cal., began to keep a close record of his 150 hens on Octoher 1, 1915. He wanted to know exactly what they were costing him and what profit there was in the game. He did not take alfalfa feed into account, as its cost was practically nothing for the fowls, and the only charge for feed was $98 paid for a wagon load of corn.

For the 11 months ending August 1, his books showed the following receipts: Eggs sold to Tulare Co-Operative Poultry Association $279.91; 100 pullets raised at 50 cents each, $50.00; poultry and eggs consumed at home, $25. Total income $354.91. Total net income $256.91.

At that rate the income for 1000 hens would have been over $1700 for the 11 months or about $1850 a year.

Comfortable barns keep dairy cows warm far more cheaply than high-priced feed.

Mangels Killed Hens

FOR the welfare of our brother poultrymen I would like to give a warning to the users of mangels or cow beets as a green food for mangels of this year's growth contain injurious acids that are fatal to layers or poultry in general. My first feeding of mangels caused a general diarrhea among all birds that were so fed, leaving a yellowish comb and face. After a severe cathartic they came round all right. I never dreamed it was caused by the mangels, so the second feeding caused the same effect, leaving me with ten birds. A postmortem showed all the interior in good order, except the gall, which was three times its natural size.

Having a few young culls on the place I decided to experiment with them and the mangels, so I selected three, put them in separate runs and to each gave mangels. To pen No. 1, I gave mangels that were grown on my place. To No. 2, I gave mangels that were grown by a neighbor, and to No. 3 was given mangels that were grown twenty miles from my place. All had the same effect. I lost two birds out of three. All mangels seemed to be fully matured and looked healthy and sound.—T. P.

Underfeeding Pullets

UNDERFEEDING pullets in winter is usually due to excess of care to prevent them from becoming too fat to lay.

It is better to feed the birds all that they will eat of a substantial ration furnishing in proper variety the food elements required, taking care at the same time to provide for as much exercise as will keep them in good condition under heavy feeding.

While pullets remain on range the only changes in diet usually necessary as cool weather comes on are to increase the quantities of food given, especially corn and corn products, and if green food on the range is running short, to supply what is required to make up the shortage.

Canned Chicken

A GOOD way to handle the chickens to be used on the table is to can them. This can be done at any convenient time or when they have reached the desired size. Draw as soon as killed, wash carefully and cool. Cut into convenient sections, place in wire baskets or cheesecloth and boil till meat can be pulled from bones. Remove meat from bones; pack closely into glass jars; fill jars with hot liquid after it has been boiled down one-half; add one level teaspoonful of salt per quart of meat for seasoning; partially seal jars; set on a rack in a vessel with water enough to cover jar one inch and boil three hours, then seal tight.

The cantaloupe yield in the Salt River Valley of Arizona last year was approximately 1300 carloads from 3000 acres. Cantaloupes from the Salt River Valley are famous, finding a ready sale in all the large cities from Denver to New York. Farmers say the acreage will be increased next year.

Using the production of 1913 as a basis, the French sugar beet crop for 1917 is short 67.9 per cent or 148,000,000 bushels. This heavy loss to the resources of France explains her desperate need for sugar and her dependence on imports.

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit-maker, write E. J. Reefer, poultry expert, 3771 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" cost you nothing. Send a dollar today or ask Mr. Reefer for his Free Poultry book that tells the experience of a man who has made a fortune out of poultry.

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Right Soil Blasting

THE blasting of soil may be intensive tillage in the best sense of the word, or it may be just soil blasting. The difference lies somewhat in the manner in which the work is done, but it also hinges considerably on the kind of explosive that is used. Some that are on the market will give excellent results; others may even pack the soil and create cavities underground.

The powder for profitable soil blasting is one that will apply its strength so slowly that it will raise a mass of earth, which then crumbles and cracks apart as the gases penetrate it. The powder that should not be used for the purpose is the kind that applies its strength so violently that the earth for a foot or so on all sides of the charge is pulverized, while that beyond a foot or so is left largely undisturbed, or at best is merely split in three or four places. Powder of the latter class is the straight nitro-glycerine product which at the present time is so high in price. Of the former class, there is first of all farm powder of the ammonia type and of low percentage.

When soil blasting is done with the wrong explosive the effect is a good deal the same as when it is done in ground too wet. The opposite result from that desired is secured, to a certain extent. The rule for determining ground condition is to take a sample from a couple of feet down and squeeze it in the hand. If it crumbles between the fingers it is dry enough to blast; if it packs under the pressure, it is too damp.

California is dotted with lands that ought to be broken up by explosives. First of all there are the recognized hardpan areas, such as prevail in some of the best apple sections. This hardpan soil is not poor. On the contrary it is more than ordinarily fertile when water is given a chance to penetrate and to remain in capillary form. Without being broken such lands are nearly worthless, but with proper deep breaking they are among the most productive in the entire Pacific Coast country.

Another type of soil that should be broken is the artificial hardpan formed by irrigation throughout several years. The soil first becomes clogged then lightly cements. The result is that it will not take irrigation water, or permit the movement of capillary water.

In any soil where trees are to be planted, it pays to break up their beds before they are set out. That is the last good tillage the ground will receive for a generation. Conditions a couple of feet down may be bad for the roots. The blasting will correct them. The cost of the operation is exceedingly little, when compared with the potential value of the trees.

Whatever the blasting may be for —apples, bean land, truck land or what not—it must be done with suitable powder and when the ground is in proper condition. The handbook of the powder maker is specific on these points, and should be studied.

If the hogs get a taste for poultry about the only thing to do is to keep the chickens away from them. Occasionally a young hog can be broken of the habit by keeping it isolated from the poultry for a time, but it is almost impossible to conquer the habit in an older animal.

The only thing that an automobile owner should put into the battery is distilled water. Putting acid into the battery makes the solution too strong and causes violent action which soon destroys the plates.

These tools do the work of 3 to 6 men

One man can cultivate 3 to 6 times the usual acreage with Planet Jr implements. They are so designed and constructed that with greatest ease they do thorough, rapid cultivation. You save time, labor, money, cut down living expenses, and increase the food supply.

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[74]

Send for Free Book

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If readers of this publication do not find advertised just what they are looking for, write Orchard and Farm, Examiner Building, Los Angeles, and you will be put in touch with reliable firms handling the goods desired.

The Western Woman

A crowd of troubles passed him by
As he with courage waited.
He said, "Where do your troubles fly
When you are thue belated?"

"We go," they said, "to those who mope,
Who look on life dejected,
Who weakly say good-bye to hope—
We go where we're expected."

GOOD Friends;

A happy New Year to you all! And why should we not look forward to happiness? No matter how thick and fast the troubles are coming let them fly by and go on where they are expected. Let them go to those who are sure that the war will last forever, and that they are suffering because of a meatless or wheatless day.

It seems utterly impossible for most of us to realize how well off we are, even though we have sent loved ones to join our armies or have lost financially because of this great war.

And if you are poor or just in the medium class don't imagine that you are the only ones that are saving or that are asked to save. I know of a banquet given at one of the fine hotels in San Francisco. Twenty-six persons rich in the world's goods attended, and just to show you that they were not stingy or mean, I will tell you that a $30 tip was divided between the two waiters who served them.

Out of these twenty-six people only two took either sugar or butter. They declared that this was their daily habit to let the sugar bowl and the butter dish pass them by, in order to do their bit for the food saving of America.

This is only an incident, but just as I know this to be true, so I know that the farmer or the poor man is not the only one to work and save. Every sane-minded, decent citizen, rich or poor, is doing and will do everything that is asked of him by our government to bring about the triumph of democracy.

RUTH ROBERTS.

A Word to the Wise

If children object to taking milk or broth, in fact any liquid, even medicine, it may be made of pleasure and interest to them to do so if they are allowed to drink it through a straw or stick of macaroni.

Odds and Ends of Soap

The odds and ends of soap, both toilet and laundry, are of little use and are often wasted. Try tying them together in a piece of cheese cloth or any clean rag and use in the dishpan just as you would a cake of soap for washing dishes.

They make a fine lather and are useful to the last crumb.

Indian Pudding

Scald the cornmeal in boiling milk and stir in salt and brown sugar or molasses—some molasses to give good color—two beaten eggs, a good tablespoon of butter, seeded raisins and milk to make a fairly stiff batter. Stir several times while baking and add more milk if it seems to bake too dry. Bake about an hour and a half. Molasses does not mean refined syrup, but good New Orleans black-strap.

What You Are Asked to Do

The men of the allied nations are fighting. They are not on the farms. The production of food by these countries has therefore been greatly reduced.

We must send wheat and use the corn ourselves. The allies have not the mills for grinding corn, and cornmeal is not durable enough to be shipped in large quanities.

Just so we must also send meat, butter, condensed milk and sugar that flies opposite the German one is by proxy the American flag, and that the armies fighting in our defense under these flags cannot be maintained through this winter unless there is food enough for them and for their women and children at home. There can only be food enough if America provides it. And America can only provide it by the personal service and patriotic co-operation of all of us.

Nursery Plum Pudding

Take a loaf of raisin bread, wrap in a clean cloth and place in colander to steam. It will take about an hour, but can be steamed over something else that is boiling.

Serve with sweet sauce. This is a very cheap pudding, nutritious and palatable.

Remember not to try doing too many things at once. As Prentice Mulford said: "You can't bake a johnnycake and mend the chicken coop at the same time." The folks that expect others to draw a circle with one hand and a straight line with the other never try it themselves.

Salmon Loaf

One can salmon, minced and with bones removed; 4 or 5 crackers and 3 slices of bread crusts rolled fine, milk enough to soften; 1 egg, ½ teaspoon each of sage, pepper and salt Form in loaf and place pieces of butter on top. Bake in oven about one-half hour.

Tapioca is very nice cooked with fruits and canned peaches, and apricots blend well with it as a pudding

A contemporary of Rossini said "An overturned salt cellar is only to to be feared when overturned in a good dish." Which is a good thing for the superstitious to remember.

About Calories

"MA, I can tell you all about the calories in your food."

"No you don't Mary Jane There ain't none. The man I deal with keeps everything in his store covered up."

Now I know that we are not all quite as ignorant of the meaning of calories as the woman in this little story, but perhaps some would like to know the caloric value of the foods they are eating.

Multiply your normal weight by sixteen and eat as many calories of food as that amount totals. If you want to gain you eat more than the amount; if you want to reduce, eat less. Here is a list:

	Calories
Cereal, cooked; heaping tablespoon	35
Cereal dry same amount	20
White or graham bread, one slice	70
1 egg	75
1 ball of butter	80
1 glass of milk	160
1 glass of skimmed or buttermilk	80
Thickened or cream soups, plateful	160
Thin or clear soups, one cupful	5-20
Lean fish, 1 tablespoonful	35
Fat fish, same amount	100
Lean meat, 1¾ ounces	70
Fat meat, ¾ ounce	200
Fat oysters, each	8
Medium baked or boiled potato	90
Potato mashed, heaping tablespoonful	40
Rice, boiled, same amount	35
Corn, canned	35
Peas	40
Squash	20
Banana, whole	100
Orange	70
Strawberries, saucerful	40
Gelatine, heaping tablespoonful	160
Ice cream, same amount	135

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100 Progressive Pedigreed Everbearing Strawberries 60c. 200, $1.50. Prepaid. Pedigreed Nursery Co., Salisbury, Mo.

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See it when you go East over the Salt Lake Route. 'Tis an excellent way, with two daily through trains to Chicago.

Los Angeles office:
501 S. Spring St.

SALT LAKE ROUTE

Capitalize the Farmer.

(Continued from Page 6.)

automatically keep out the profiteers. The price to the settler would have to be the value appraised by fair Government appraisers.

As you know, Mr. Quick, the curse of all the ordinary "back to the land" movements is the under-capitalization of the farmer. He moves upon a piece of land, which needs to be improved, graded, replowed before he can raise anything like a good crop on it. He tries to level it, and raise crops on it at the same time. His home is a hovel. He pays out all his money in payments on his land and has no working capital. Burdened with mortgages and interest, he has no further local credit. And under these conditions, he produces very poor crops.

How to Get Farmers

As to getting farmers. With a view to securing some data on which to base general plans for action, a local land company within a few weeks mailed to every farmer in one Illinois county a very bald statement of what was offered on its lands—no pictures, no glamour, just a bare statement. They enclosed a form to be filled out giving name, address and some information as to family, social needs, amount of capital and other matters. They did not offer anything as attractive as this present plan—a complete farm, with a good house, land all plowed and ready for the seeder at a low price and on 40 years' time. And they got 20 answers from that one county, of men who had from $4000 to $7000 capital, and who said they would be very glad to move if investigation supported their claims. That particular county is said to have 3000 farmers, of whom about half are renters. It seems obvious that if ONE PER CENT of the farmers of that county should leave, the others could somehow close ranks and keep up the production of the county. There are more than 200 such counties in the corn belt, from which at least 4000 "soldiers of the soil" could be recruited without injury to the general productiveness—and that would take care of 400,000 acres in the irrigated regions. If they borrowed from the Federal Banks an average of $7000 each it would mean $28,000,000 in bonds—a flea-bite in these days of billions.

A Patriotic War Measure

This matter is not simply a suggestion of my own brain. It was proposed as a patriotic war measure here about two months ago, has been discussed with and approved by some men of more than local prominence; has been considered by Mr. Joyce of the Berkeley bank, who does not seem to find in it any serious objections. I believe the movement can be organized locally on a very high plane of patriotic service, and carefully tried out—and if it is found workable, it can be extended on the same basis all over the West.

The one thing which is absolutely necessary is the favorable co-operation of the Federal Land Bank authorities.

You will hurt nobody's feelings by making very frank and free comments upon this plan. There's no pride of authorship behind it—it isn't even my plan. The man who worked it out in most of its details has no land he wants to sell, but he thought that this might be his patriotic service, to find a way of enlisting acres around the colors. Nothing has been printed about it, nor has there been any sort of a propaganda in its behalf. But if it is good, and if it can be worked, shouldn't it be put into effect—somehow?

Yours sincerely,
BAILEY MILLARD.

"—use foods that require less sugar"

THIS is one of the most important recommendations of the Food Administrator: "In cooking and baking use foods that require *less sugar.*"

In other words—use Ghirardelli's. Use it freely and wisely—in place of other less nutritious and more expensive foods. Not only will you save money but you will help in food conservation.

Cooking and baking require less sugar when you use Ghirardelli's. Because—it contains in itself the sweetening flavor you need. More than this—it adds a new touch of richness to your icings, your puddings and other desserts.

In ½ lb., 1 lb. and 3 lb. cans; a tablespoonful—one cent's worth—makes a cup.

D. GHIRARDELLI CO.
Since 1852 San Francisco

Ghirardelli's Ground Chocolate

"Golden State Limited"

Finest modern equipment—entire train, including diner and observation car, through without change to Kansas City and Chicago.

THROUGH STANDARD SLEEPER TO ST. LOUIS

Every luxury of modern travel—

Leave Los Angeles	11:15 a. m.
Arrive Kansas City	7:25 p. m.
Arrive St. Louis	7:30 a. m.
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Close connections at Chicago and St. Louis with limited trains east.

The "Californian"

Another fast train for Kansas City and Chicago—

Leave Los Angeles	3:00 p. m.
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Close connections for all points in the Middle West and Eastern States.

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Southern Pacific

—See the Apache Trail of Arizona

Pretty Costumes and House Dresses

Patterns From the Best Designers, Selected by Ruth Roberts.

NOW for winter costumes! There are some very nifty styles shown on this page and no doubt my readers will be able to make some satisfactory selections.

The house dresses are particularly attractive. As we shall probably have nothing better to show next month it would be well to send in your pattern orders now.

RUTH ROBERTS.

1604—Ladies' Apron with or without belt. Cut in 3 sizes: Small, medium and large. It requires 4⅞ yards of 36-inch material for a medium size. Price, 10 cents.

2144—Ladies' House Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 36 requires 6¼ yards of 36-inch material. The skirt measures about 2½ yards at the foot. Price, 10 cents.

2294—Girls' Dress. Cut in 4 sizes: 2, 4, 6 and 8 years. Size 8 requires 3¼ yards of 44-inch material. Price, 10 cents.

2296—Ladies' Dress. Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 6¼ yards of 36-inch material for the dress and 1½ yards for the jumper. The skirt measures a little over 2 yards at the foot. Price, 10 cents.

2301—Child's Under Waist and Drawers. Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 10 requires 1⅝ yards for the waist and 2½ yards for the drawers, of 27-inch material. Price, 10 cents.

2307—A Set of New Collars. The pattern includes all styles illustrated. It is cut in 3 sizes: Small, medium and large. Size medium requires, for No. 1, 1 yard of 27-inch material; for No. 2, 1 yard of 36-inch material, and for No. 3, 1¼ yards of 36-inch material. Price, 10 cents.

2316—Juniors' Dress. Cut in 3 sizes: 12, 14 and 16 years. Size 14 requires 5⅝ yards of 44-inch material. Price, 10 cents.

2317-2313—Ladies' Costume. Waist 2317 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 2313 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. A medium size will require for skirt and waist 5⅝ yards of 44-inch material. The skirt measures 2¼ yards at the foot, with plaits drawn out. TWO separate patterns, 10 cents FOR EACH pattern.

2320—Girls' Dress with or without jumper. Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 10 requires 2¾ yards of 44-inch material for the dress, and 1⅜ yards for the jumper. Price, 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date fall and winter 1917-1918 catalogue, containing 550 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker.

Milk for hens cannot be excelled as a regular ration. The poultryman who is situated so that he can get skim milk cheaply is fortunate.

Use Coupon in Ordering Pattern

Herewith find.....cents, for which send me the following patterns:

Pattern No. .....Size.....

Pattern No. .....Size.....

Pattern No. .....Size.....

Be sure to give number and size. Send orders for patterns to ORCHARD AND FARM, "Examiner" Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below.

If there is a shelf on which to keep a knife, scissors, salves, castor oil, pencil, etc., the hen detected in eating eggs will be caught and have her beak trimmed squarely before her owner leaves the hen house. Long toe nails will be trimmed with the scissors, or a bit of bandage cut for a wound that needs attention. Scaly legs will get a wipe from the kerosened cloth, and a good greasing with carbolized vaseline as soon as they show themselves.

Nursery trees vary in quality of growth and vigor quite as widely as they vary in production after coming into bearing. Whatever arrangement has been made with your nurseryman regarding the trees needed for planting new orchards or replanting old orchards it is not a good plan to postpone the ordering and selection too long.

The most expensive wood in the world is said to be the boxwood, imported from Turkey for the use of engravers. The cost ranges from 4 cents a square inch up to 10 cents a square inch for the best grade. An ordinary wagonload of boxwood would cost many thousands of dollars.

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Two Experiences

One brooder house I visited a year or so ago, the property of a poultryman who incubated rather successfully for an extensive trade, contained the most perfect brood of young fowls I ever saw. To get his own flock out of the way before the first spring orders came in, this man fired up his incubators early in January. As eggs were high at the time he used those from his own hens exclusively, sorting them with care as to perfect shape and size and, his males being in the first flush of reproductive vigor, his little chicks were a marvel of strength and forwardness and health. He got some fine layers from this flock, as later his balance book attested.

The same day I visited his brooder I looked in on the pullets of his neighbor whose orders had gone to the trays the very day his own wee biddies came out of the incubators and the difference between the two broods was strange and deplorable. A few full-powered, clean-built birds lorded it round over a large percentage of runts and discards. The showing of good stock was lamentably poor and the little woman, who had been banking large on her fowls, was almost in tears over the prospect of her flock.

One to Six the Right Ratio

She blamed herself. Perhaps her method of feeding had been at fault. There might be a draft quite undiscovered by herself, yet unhappily apparent to her younglings.

Almost any cause, but the right one, was attributed to the low standard of her birds.

Be it said here that the incubator man had not intentionally worked this wrong on his customer. He had the full number of roosters—eight or nine to a hundred hens in his pens. Yet the wrong was there.

One cockerel to six hens would have showed entirely different results.

Soy bean meal is slightly higher in digestible nutriments than is oil meal. When fed to cows in large quantities soy bean meal has a tendency to make soft butter. Cocoanut meal or cottonseed meal have a tendency to harden butter. Oil meal is slightly laxative and cooling. A large variety of feeds is recommended.

White turkeys have merits not enjoyed by the colored birds. Perhaps the most important is the ease with which they may be located if they stray away. A dressed white turkey also presents a better appearance as a rule in the market than the dark colored ones.

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Saving by Tractors

Continued From Page 5

county, Cal., tractor owner, threshed one hundred sacks of barley per hour on a test run late in August. He has been averaging sixty sacks per hour with a grain and bean thresher. The tractor engine handled the work easily on a 100-foot endless belt, 50 feet between centers.

After lining up tractor and thresher to place the belt, Mr. Wilbur took up the slack, by using two jacks set against stout posts and the wheels of the thresher.

Similar work has been done with duplicate outfits by F. Florey and George Cressy, both of Salida, and exceptional results are reported.

The La Grange Gold Dredging Company at La Grange, Cal., has been cultivating 200 acres of olive orchard with a tractor.

Fred Jamison at Empire, in Stanislaus county, operated a 32-inch grain cylinder machine last summer and turned out 50 to 60 sacks per hour. Late last season he hauled his potatoes to Modesto, putting 50 sacks on a wagon and making three miles per hour with his engine.

Jamison says he makes two and a half miles per hour in plowing, and that he does the work of twelve horses all the time with his machine.

Take it all around, I think the farmers of this coast are finding the tractor a pretty good investment. It certainly looks that way when it is found that one big company in Stockton has been selling 100 tractors a month for the past year and is at the present writing 30 days behind in its deliveries though employing 3000 men, working night and day. This same company has sold 4000 tractors on this coast—2500 in California.

Other companies are also doing a good business. One middle Western concern, though only recently in the field, has sold 150 tractors in California and has orders for many more.

A New Cabbage

UPWARDS of 1000 acres of the Wisconsin Hollander cabbage were planted in Racine county's truck areas this year. The 300 pounds of seed used for this purpose was distributed through a committee composed of W. J. Hansche, A. J. Piper, S. B. Walker, F. B. Swingle, Racine; Henry Brush, Will Thompson, Kenosha, and W J. Miller, Sommers.

It was found that the new strain, developed at the State Agricultural Experiment Station and grown and distributed with the help of the local farmers, has withstood severe inroads of the "yellows" and other diseases. On the other hand, check rows of the common varieties grown alongside the Wisconsin Hollander cabbage have in almost every case been destroyed by the disease.

Dr. A. D. Selby, botanist at the Ohio Agricultural College, sent word to the conference of truck growers and crop specialists held in Racine county last month, that the Wisconsin Hollander strain of disease-resistant cabbage was making good in all tests now under way in that State.

Successful test selections of kraut cabbage made by the College of Agriculture from the Brunswick and All Seasons varieties were inspected by the party at the conference. Several heads of these resistant strains will be stored this fall and used to produce seed next year.

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INDIAN RUNNER DUCKS, 280-EGG STRAIN—Baby ducks, $20 per 100. Eggs, $6 per 100. Rocks and Reds, $15 per 100. Incubator, 300-egg, $8.00. Expert hatcher will hatch and raise every variety of poultry on shares. Satisfaction guaranteed. Box 615, Inglewood, Cal.

MODEL POULTRY FARM—White Leghorn Specialists. Established 1903. We are now booking orders for 1918 delivery of hatching eggs and baby chicks from our bred-to-lay stock. We also have some fine breeding cockerels for sale. Our prices are right. W. C. SMITH, PROP., CORNING, CAL.

BABY CHICKS from my carefully selected, thoroughbred flock of S. C. White Leghorns, $12.00 per 100, $110.00 per 1000, only eggs from my own, fully matured hens used in my incubators. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

WHITE MUSCOVY DUCK EGGS, $1.50 per dozen; Houdan, Rhode Island Red and Black Minorca eggs, $2 per 15. Parcel post prepaid. Mrs. B. Hocking, Guasti, Cal., winner of firsts and champions Exposition (World's Fair), San Francisco.

SPRING CHICKS—We are booking orders now. We start our run in January. R. I. Reds, Barred Rocks, Black Minorcas, White and Brown Leghorns. Remember, order early. Campbell Poultry Ranch, Campbell, California.

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[illegible]AN'S "Bred-to-Lay" Hoganized, [illegible] Barred Plymouth Rocks. [illegible] HICKS, Eggs. Fairmead Poultry Farm, Fairmead, Cal.

[illegible] LEGHORNS, Tancred trapnested [illegible]rs and baby chicks. H. Tar[illegible], Cal.

[illegible] I have some fine cockerels [illegible] prices. Dan Cal[illegible] Or[illegible]

[illegible] Rhode Island Red [illegible] prize winners. [illegible]

POULTRY.

JANUARY AND FEBRUARY CHICKS—

White Leghorns and White Plymouth Rocks; hatching eggs for sale; you may find equal, but there is no better stock than ours; pay us a visit or write us; we have something new; most important for people who are in earnest and out for success.

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WE CAN FURNISH YOU with White Leghorn chicks from guaranteed heavy laying stock at very reasonable prices. Big money raising chickens and eggs. White Leghorns make broilers in ten weeks; pullets lay at five months. We guarantee safe delivery of all chicks to destination. Shipped safely anywhere west of the Rockies. No money in advance; pay on delivery. Special prices on 500 and 1000 lots. Finest hatchery in the world. Established over twenty years. Further information write Must Hatch Incubator Co., 405 Seventh st., Petaluma, Cal.

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RAISE RABBITS FOR US—Good profits. We furnish stock and buy back all that you raise for $2 each. We have a market for thousands of rabbits. Our proposition strictly on the square. Send 25c for our book on rabbit culture, our proposition in full and catalog of rabbit supplies. Gilmore's Rabbit Farm, Santa Barbara, Cal. (The Rabbit Farm of International Reputation.)

HIMALAYA RABBITS—Highest quality fur bearers. We have a number of prize winners among our breeders; young, $5 pair; breeders, $10 pair. We carry breeders in New Zealand, Belgian and Flemish; guinea pigs, pets, pigeons of all kinds. We buy, sell and exchange everything in hair, fur and feathers. Fanciers' Exchange, 640 South Main st., Los Angeles, Cal.

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RAISING CALVES WITHOUT MILK with Blatchford's Calf Meal. Write for particulars to Coulson Co., Petaluma, Cal.

LIVESTOCK—Chester Whites

BALLIKEN BRAND of Chester Whites. This herd won more prizes at the late State Fair than any other individual herd. They are those mellow, easy feeding type. Get started with some of them and help increase the meat supply. Herbert Hoover says—"that the man who keeps one sow and feeds it on what is now being wasted, is the man that can and will increase the meat supply in an economical way." Be one of them. I am offering bred sows; bred gilts; spring pigs of both sexes at very reasonable prices. Every animal is cholera immune. Write for prices and the booklet that tells all about the Chester White breed. C. B. Cunningham, Mills, Cal.

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JUST THE TIME TO IMPROVE your herd of pork producers with a good Poland China boar. The best you ever saw, from $40 to $100; shipped on approval. Sows sell February 20th, in the Kings County Breeders' Sale. The Bernstein Ranch, Hanford, Cal.

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A GOOD START—Five registered Holstein cows, freshen early, $650 on train. Box 186, Bandon, Coos County, Oregon.

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TWO POTATO CROPS ANNUALLY for Californians; plant "PURPLE PERFECTION"—latest, hardiest, super-early, "salad" specialty; fine flavor. Plant soon after maturity for second crop, rendering "keeping over" superfluous; 1200 pounds from 30 of seed; mid-July, despite floods, drouth. Tubers, 10c; pound, 30c; four pounds, $1. Also "GOLDEN POTLACH" or "FULL-DINNER" PEA; super-sweet; largest, greenest, tenderest, wrinkledest, prolificest, "stickless"—"canning" unnecessary. PHENOMENAL. Packets, 10c. E. E. MARTIN (Guaranteeing Seedsman), B-4, Bangor, Wash.

$1000 per acre growing the ALTON IMPROVED RED RASPBERRY, pamphlet free. Increase the yield of all your crops from 25 to 40 per cent; grow from 200 to 500 bushels of potatoes, 500 to 600 bushels of onions, 30 to 50 bushels of wheat per acre; all other crops in proportion. My free booklet tells you how. H. A. Pinegar, Wellington, Utah.

BERRY PLANTS at wholesale prices; blackberries, raspberries, loganberries, dewberries, strawberries, gooseberries, currants, grapes, rhubarb and asparagus. Write for price list. Roscoroft Nursery & Fruit Farms, Sumner, Wash.

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RHUBARB—$1127.00 from one acre. A crop every month of the year. Write to me and I will tell you how you can do as well. J. M. Stone, Lodi, Cal. Route 4.

PRUNES, apricots, pears, cherries, walnuts; home-grown trees; prices reasonable. W. M. Scott, Cupertino, Cal. Phone San Jose 5209-R-4.

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EDUCATED HOLLAND-BORN AMERICAN CITIZEN (5 years in U. S. A.), age 32; has family; wants to work and have charge of ranch on shares or salary. Experienced in dairying; good dairy on shares preferred. Good references. Box 808, ORCHARD AND FARM, Los Angeles, Cal.

HIDES, FURS, PELTS.

"SCIENTIFIC FUR FARMING"
A profitable, sparetime business, good for $1500 per year and more.
RAISE STOCK FOR US—We buy all you raise. We pay you the highest market prices and furnish perfect breeding stock. GO INTO BUSINESS FOR YOURSELF. Our booklet, details and contract mailed for 10 cents. Dept. X.
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FURS repaired and remodeled at very reasonable prices. Chicago Cloak & Suit Co., 969 Market St., San Francisco.

FUR AND RABBIT raw skins wanted. Robert Morris, 239 Geary St., San Francisco.

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WANTED IMMEDIATELY—Men-women, 18 or over; U. S. Government positions; hundreds clerical positions obtainable; $90 month; quick increase; easy work. Write immediately for list positions. Franklin Institute, Dept. K185, Rochester, N. Y.

WANTED—A GOOD MAGAZINE SOLICITOR; must be a hustler; prefer party living in the country. Address or call ORCHARD AND FARM, Examiner Bldg., Los Angeles.

GUARANTEED SEEDS

GIANT "MARROW" CABBAGE—Pacific Coast's poultry, dairy "Greens"—Revolutionizer. (See detailed description in December issue.) 500 GUARANTEED seeds, 25c; good plants, $1 per 100, prepaid. Particulars, suggestions, FREE. E. E. MARTIN (Guaranteeing Seedsman), B-4, Bangor, Washington.

STRAWBERRY PLANTS

NICK OHMER AND KLONDYKE varieties. Strong, vigorous plants from one year settings, grown at Canby, Ore. Price less than 5000, $3.50 per 1000; over 5000, $3.00, f. o. b. Canby, Ore. Packing free. Cash with order. Address Gill Bros. Seed Co., Portland, Ore., R. 1.

MONEY TO LOAN—REAL ESTATE.

ANY AMOUNT ON COUNTRY PROPERTY Bank rates. Write for particulars. We specialize on large country loans.
REALTY MORTGAGE CO.,
W. E. Palmer, Pres.,
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KNOX—Spreckles Bldg., San Francisco. Debts collected everywhere; no charge unless successful.

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WANTED—Thoroughbred male Newfoundland pup. J. E. Fitzgerald, Marshfield, Oregon.

The Eyes of the World
Are Upon the
Battlefields of Europe

Six Big Maps, Beautifully Engraved, and Printed in Colors, Including Maps of Europe, America, California, Mexico, the Battle Fronts, Etc.

Follow the Armies and Navies. Be able to read the newspaper and magazine reports of the great war intelligently by having one of these big Charts, 28x36 inches, consisting of six pages of maps, in your library or reading room.

Where are our "Sammies" fighting? How far have the Allies advanced? What progress has been made in the past year in the Allies' great drive? Do you know that the greatest point to which the Allies have advanced since June 1, 1916, is only 25 miles, and in many places have not advanced at all?

Do you know where Uncle Sam is training our "Sammies" to fight across the sea? There are 4 Naval Training Stations, 32 Cantonments, 12 Aviation Fields, 13 Officers' Training Camps.

All the above questions are answered in our NEW THREE-SHEET WALL CHART, showing the Western Front from Nieuport to Rheims as the first page and the Western Front from Rheims to Basel, Switzerland; also the Russo-German Front, Riga to Lemburg, as the second page. These maps are beautifully engraved in colors. They are positively the finest maps of the War Zone offered to the public and contain all the Towns, Roads, Woods, Railroads, Canals, Forts, Fortresses, Aerodromes, and are very complete in every detail. The third page shows your State Map, complete and up to the minute, giving each Auto Road. How many times have you stopped and asked for the best roads, even in your own State? This will be entirely eliminated by our New State Map. The fourth page consists of the list of towns, population and location of each. The fifth page contains another Map of Europe. The sixth page shows Commercial America, giving the location of the various Cantonments, Naval Training Stations, Aviation Fields and Officers' Training Camps.

With this Chart you can answer every important question of the hour, and it should be in every American home.

This wonderful set of maps is a ready reference for every member of the family. No modern school Chart has the maps and valuable information contained in these late maps.

The boy or girl in school today needs them, and the mother and father who have finished school will refer to them with keen interest. They are valuable to every member of the family and must be seen to be appreciated.

Our Offer

One of these wonderful three-page maps will be mailed postpaid to any address in the United States, including three years' subscription to ORCHARD AND FARM (new or renewal), for $1.25.

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Enclosed find $1.25 (check, stamps or money order), for which enter my name on your mailing list for three years and send me the three-page Chart, postpaid, by return mail.

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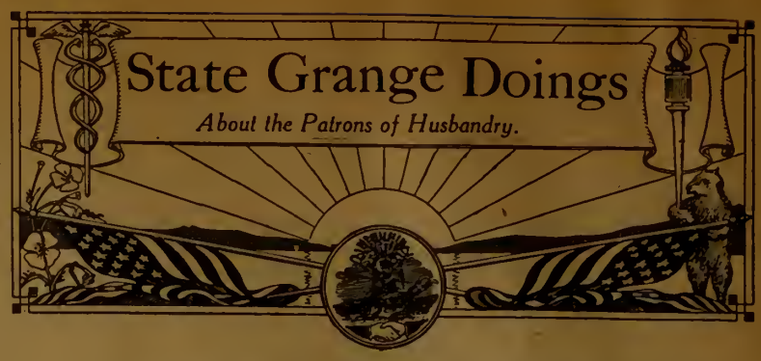


Edited by E. C. Abbott, State Lecturer.

Orchard and Farm is the Official Organ of the California State Grange.—Editor's Note.

Has the Grange Failed

By E. K. Clendenning,
Campbell, Santa Clara County, Cal.

THE wave of improvement clubs and other organizations, both social and otherwise, that has swept over the country during the past few years, would indicate at least to a person not acquainted with the work of the Grange and what it has accomplished in the past towards bettering the conditions of farm life, that these new organizations seemed a necessity. That the Grange has not enlisted the united support of the farmers would go to prove that as an order it does not fill the purpose that it was intended it should. At one time I shared that view and joined other organizations that promised more. But after years of study and effort and being familiar with the work they accomplished, I have no hesitancy in saying the Grange does not suffer in comparison with any other order. That we are not as strong in California as in other States I admit, but conditions are different here.

Californians Too Impatient.

We are an impatient people, wanting immediate results, and if we don't get them, we strike out on some new line. A farming population that is more or less shifting, we don't stick to one thing if we happen to meet a failure. Nevertheless the Grange has weathered the storm for fifty years and is still rapidly growing in strength, with hundreds of new Granges being organized throughout the different States, as well as many others being reorganized.

In Oklahoma a State Grange was organized a year ago with twenty-five subordinate Granges. At last reports the number had reached ninety-seven. That we have not a larger membership in this State is not the fault of the order or its principles. I have a circular before me, sent out by the University of California, in which it gives a review of the functions of the Farm Bureau, one of the latest efforts to correct the evils that they claim all other organizations have failed to control. In this circular four reasons are pointed out in which the University thinks we have failed. Out of the four, only one can be attributed to the Grange, and that is lack of membership, covering the different counties. That I think is not really essential, although I believe we should be more active in extending the work of the order.

Not Hustling Members.

In the local Grange to which I belong no siren calls have been sent out or membership contests engaged in to increase its number. I wish to quote further from the Farm Bureau circular, in which it says: "Many of our farm problems are already solved on the farms of the nation. Individuals have found the solution of vexing questions that are agitating the experiment stations and agricultural colleges. But these solutions usually fall out of sight unnoted or are known only to the man on whose farm they occur. If these unknown and unnoted experiments could be gathered they would at once add much to our view of agriculture."

Now anyone who is at all familiar with the work of the Grange knows that is just what is being done. We have no trade secrets; what a member learns he passes on to the other members. One of our members told me recently of such an experience that was worth the cost of membership for years to come.

Then take the other activities of the Farm Bureau, in which they hope to engage. I think all, without exception, are taken care of by the Grange at the present time. They offer nothing new as far as I can see, and what we have failed to accomplish they will probably also fail in, for human nature is the same and will assert itself no matter under what name or creed it is working.

A Social Order.

It has been said of the Grange that it is a social order. This we do not deny, although it is not primarily so, as some seem to think. Any order in which both men and women join and are on an equal standing must of necessity be more or less of a social nature, and quite a few have joined because of the social part.

If the Grange has not accomplished more, it is because it has not had the support of those who should become members. Very often the members themselves do not attend the meetings often enough to become familiar with the work and get their interest aroused.

Then we have the man who is too tired after his day's work to attend his Grange meeting. To such a man the Grange means relief, for the experiences of others in doing the same work may set him right. But such a man or woman cannot enjoy farm life and certainly any boy or girl will not want to remain on a farm on which the end of the day always finds the worker too tired. It is part of the Grange work to make farm life pleasant. No other organization of farmers is better equipped to educate its members in practical co-operation than the Grange, and it has long advocated the idea of better marketing of our products through organization, and its members have been the leaders in our present organization of prune and apricot growers.

Financial Benefit to Members.

There is abundant testimony that the Grange is of financial benefit to its members, although some must actually feel the money or hear the coin jingle in their pockets before they will admit that any had been handed out to them.

Then we have the matter of legislation that affects us. The Grange has always been active towards needed changes in our present laws as they affect the welfare of the farmer or community. There is much to be done and the Granges in other States are doing it. So is the Grange in California, according to its membership.

This Bird Is on the Wane.

A Turkey Decrease

MUCH interest was shown by the readers of Orchard and Farm in the article in the November number on "Top Prices for Turkeys," by George R. Watkins. It is to be hoped that the number of letters sent in to this office on the subject is an indication that turkey raising will be engaged in to a greater extent than at present, for the industry has been on the increase of late years and prices are bound to be good for a long time to come.

In 1900, 6,594,695 turkeys were reported as kept for breeding purposes in the United States, while in 1910 this number had decreased to 3,688,708. No figures are available since the last census, but statements made by poultry dealers throughout the country indicate that this decrease is continuing.

Turkey Ranching

In the unsettled foothill regions of California and in certain sections of Arizona and other western States, a few persons have engaged in this industry to the extent of raising a thousand or more turkeys every year.

Here the range is unlimited, and the natural food of the turkey, such as grasshoppers and other insects, green vegetation, and the seeds of various weeds and grasses, is abundant.

These large flocks of turkeys are managed much like herds of sheep, being taken out to the range early in the morning and brought home to roost at night. They are herded during the day by men, either on foot or on horseback, and by dogs specially trained for the work.

Marketing the Birds

Turkeys are really not difficult to raise, and as for marketing them there is no trouble at all. A custom that is prevalent in Texas is for hucksters to go out from the different dressing plants for a distance of 10 or 15 or even 30 miles and stop at each farm and buy all the turkeys the farmer will sell at the price offered.

A flock of 1000 or more turkeys is often gathered up in this way, each turkey being weighed and paid for at the time of the purchase. In one case 8000 turkeys were gathered together at one point in Texas and driven by 30 men a distance of 13 miles in two days. A flock of 700 was later driven this same dist- by 5 men in

Baby Beeves Pay Well

THE campaign to prevent the killing of so many calves and to turn them into baby beef in case they cannot be brought to maturity profitably is working out well. Stockmen are becoming impressed with the Food Administration's argument that baby beef can be made to pay. In a recent number of the Farm Journal, Charles Rogers, a well-known cattleman, says:

"Baby beeves sell as high as heavier cattle and cost the producers less. It takes less feed to produce a pound of flesh on them than on matured cattle. The young heifers sell as well, and sometimes better, than the steers, and

A Good Start for Baby Beef.

the returns from the money invested come in quicker. As a rule the heifers are in better condition at weaning time than the steers.

"If one would get the best results in raising baby beef, care must be taken in selecting the cows and the sire. It is not necessary that the cows be purebred, but the sires should be purebred and from a standard registered herd.

"A dairy strain in the cows is not best, but after several crosses it may give a tendency to better milk production along with the beef qualities, provided the sire is always of the best beef type. A sire with good beef qualities and a tendency to early maturity should be selected."

To Save Milk Cans

WITH the co-operation of the dairy trade, George E. Haskell expert in dairy products, has collected information on the probable future supply of milk and cream cans. The sheet steel and tin plate industries have been burdened with war orders to the extent that cans for dairy products are not only high priced, but are frequently unobtainable.

Conservation of present supplies is therefore essential to insure enough containers for marketing the milk and cream which American farmers have been asked to produce. A campaign is being made to check the rough handling of shipping cans by transportation companies and to investigate methods of straightening and retinning old and battered cans.

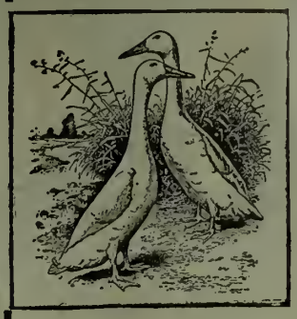
Mishandling of cans includes three classes of abuses:

1—Unloading cans at wrong stations.

2—Unloading cans with unnecessary roughness.

3—Allowing cans to remain out in the rain

THE HOME OF THE PURE WHITE INDIAN RUNNER DUCK



Unequaled as egg producers. White egg strain. I have been breeding the White Runners for years. They are all line-bred and nothing but first class stock is put in the breeding pens. If you want winter eggs and lots of them order a trio or pen.

Trio, $5.50. Pen, 1 male and 4 females, $8.50.

I am now booking orders for eggs for hatching. Book your order early to be sure of your eggs when you want them.

Price of eggs, $2 for 12 eggs; $3.50 for 25 eggs; $6.50 for 50 eggs, and $11.50 for 100 eggs.

For further information write me or order direct from this advertisement.

F. W. McCauley - - El Portal, Calif.

"Good to the Last Drop"

CALVES relish and thrive upon Blatchford's Calf Meal, the milk substitute. They increase in size and weight rapidly; are healthy and vigorous, no indigestion—no scouring.

Blatchford's Calf Meal

should be used to push the calf forward to a grain diet. This important move is more essential now than ever.

Write for Booklet "How to Raise the Largest Calves at the Smallest Cost." If you raise any calves write for the booklet. It is mailed without cost.

BLATCHFORD CALF MEAL COMPANY, Dept. 118, Waukegan, Ill.
COULSON POULTRY & STOCK FOOD CO., Petaluma, Calif.
GERMAIN SEED & PLANT CO., Los Angeles, Calif.

SHORTHORNS

Paicines Ranch Company

offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves.

For prices and particulars, apply to

David J. Stollery
320 Sharon Building
San Francisco, Cal.

$20—BERKSHIRES—$20

Registered weanling boars at $20 each. Best blood in the State. Same strain cannot be duplicated for double the money. Order at once.

WHITE OAK RANCH,
Skaggs, Sonoma County, Cal.

RHEUMATISM

Use ANTI-URIC, the famous ROOT and BERRY remedy for the cure of RHEUMATISM, catarrh of the stomach and the purifying of the blood; will assist the kidneys; has cured thousands. Contains no opiates or chemicals, and the most delicate stomach can take it. An outfit (two weeks' treatment) contains an 8-ounce bottle of liquid, a box of tablets for internal use and a 1-ounce bottle of oil especially prepared for MASSAGING the parts affected. Results guaranteed or money refunded. Price $1.50 per outfit. If not at your local druggist we will send prepaid by Parcel Post, C. O. D. Write today.

ANTI-URIC CO. 32 Front St., San Francisco.

Did You Ever Keep a Record of Your Cows?

If so, you have no doubt felt the need of a convenient, simple and handy record sheet. Thousands of dairymen throughout the United States are today using record sheets. We have a record sheet that will fill your every want.

If you have never kept a record now is the time to begin. You can never be as successful a dairyman without dairy records of your cows as with them. Send for enough to run a year—one a month—and you will never again do without them.

Daily Milk Record Sheet for Ten Cows, Size 10 ins. by 17½ ins.

6 Sheets for $ .25, Postpaid
[illegible] $ .50 Postpaid

MAXWELL

Most Miles per Gallon — Most Miles on Tires

Everything That Counts for Your Profit and for the Future of Your Family Is Moving at Motor-Car Pace and Radius

You can't shut your eyes to that. Are you going to stick to horse-pace—one-fifth the pace of motor cars, and to horse-radius, one-fifth the radius of motor cars?

Are you content to see others seize the golden chances that are offered now and the untold chances that are coming in the next few months? Or will you join your neighbors who are moving at motor-car pace?

A little delay now may have results that all your future cannot repair.

Take this up now. Be fair to yourself, to your girls and boys, to your wife. Look into the changes of the last few months which have placed the whole question of motor-car service vs. horse service in an entirely new light. We say—

1. Motor cars are now cheaper to use than horses for all work which a motor car can do.

2. Of all the motor cars giving maximum service the one that costs least to run and use is the Maxwell.

That ought to make you think. We don't expect you to act on it until we have proved it to you. We can prove it to you. For the sake of your own work and profits, for the sake of your girls and boys and wife, take this up now. Send us a letter today. Make your decision while these cars of greatest efficiency and economy are still procurable. We will send you the name and address of the nearest Maxwell dealer.

Touring Car $[illegible] Roadster $[illegible] Coupe $[illegible]
Sedan $[illegible] Sedan with Wire Wheels $[illegible] F.O.B. Detroit

Write Today for Catalog B

Maxwell Motor Sales Corporation

Detroit, Michigan — San Francisco, California

February, 1918 See Great Prize Offers—Pages 4 and 20 5c Per Copy

ORCHARD and FARM

ESTABLISHED 1888

Courtesy L. A. Chamber of Commerce.

Los Angeles Pomelos

REO

"THE GOLD STANDARD OF VALUES"

This New Reo Light Four Is a Handsome Motor Car

AT THE NEW YORK SHOW, in January, the Reo exhibit was, to an even greater extent than ordinarily, the mecca of the crowds.

YOU'D THINK, PERHAPS, that at the national automobile show, and especially in the world's greatest metropolis, where dealers and buyers go to see what is latest in construction and design, that the ponderous multi-cylinder machines would attract the most attention.

ON THE CONTRARY, there was vastly more interest shown in the types of cars that are designed to supply that great American need for a practical, economical, five-passenger touring car or three-passenger roadster.

THIS YEAR, more than ever before, buyers are paying less attention to fads and more to practical things. More to cost of upkeep than to first cost.

AND THIS REO—this new Light Four—stood out above all the rest.

IT IS SUCCESSOR to the greatest four-cylinder automobile ever built—that wonderfully efficient, wonderfully sturdy Reo the Fifth, that for eight years maintained its supremacy.

THIS IS A REFINEMENT of that great car. All fundamentals have been retained and every detail has been refined to the last degree. In a word this latest Reo represents all that has gone before and just that much more of Reo experience.

THIS IS A REAL CAR—a full five-passenger Light four. Not a skimpy—not a little four.

IT DOES SEAT FIVE full grown adults—you don't have to use a shoe horn to get them in.

BODY DESIGN IS BEAUTIFUL—it is up to the minute in every line and curve and in every detail of upholstery and finish and appointments.

IT IS JUST THE CAR you would specify if having one made to your own order.

FOR HERE ARE COMBINED roominess with economy of operation; beauty in appearance with sterling mechanical quality;

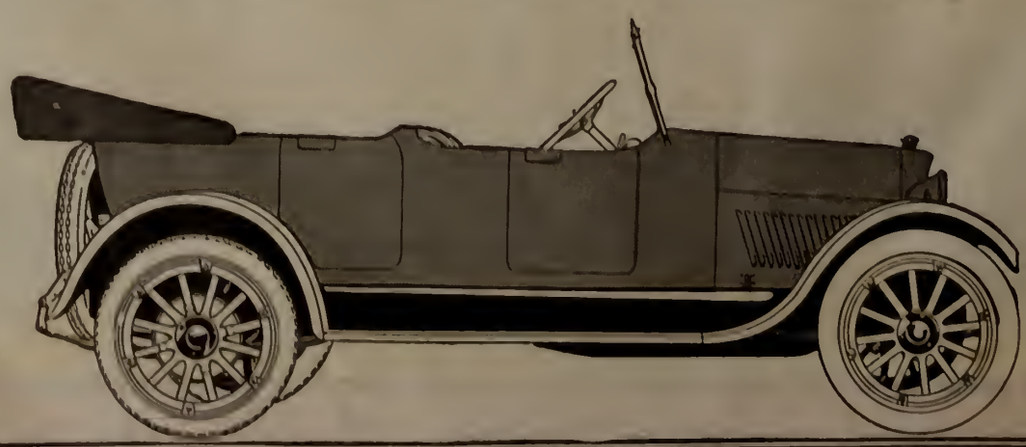
AND LOW UPKEEP—that quality for which Reos have always been famous.

OUTPUT IS LIMITED—must be this year, for we also are doing our part to assist Uncle Sam.

SO YOU'LL HAVE TO HURRY. Make your decision—see your Reo dealer and place your order well in advance of the time you will want delivery else you will surely be disappointed.

TODAY—won't be a minute too soon.

Reo Motor Car Company, Lansing, Michigan



ORCHARD and FARM

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Big Egg Record of Electric Lighted Henhouses

Flock of 650 Hens Averages 195 Eggs for a Year

POULTRYMEN of San Fernando Valley, Cal., are marveling at the record made by Lewis G. Wiley whose ranch is at Kester Junction, a few miles west of Lankershim.

Very few persons had known what Wiley was doing in the egg line.

A Few of the Wiley Hens That Are Roused Up by Electric Lights at 3:30 A. M.

Wiley is the kind of man who keeps his affairs under his hat. He is from the city of New York where people talk about the weather, the theater, the subway crushes and such things, but don't discuss their business affairs.

But the other day B. R. Holloway, the Van Nuys chick man, was talking with Wiley and the Kester Junction poulterer casually mentioned the fact that his 650 laying leghorns had averaged 195 eggs apiece for the past year.

"Are you sure about that?" asked Holloway. "Isn't there some mistake?"

"Sure as anybody can be," replied Wiley. "Here are the monthly records. Everything was put down by my wife and me just as it happened."

Holloway looked over the sheets.

"That's a wonderful record," he said, convinced. And he went away and told other people about it, including the editor of Orchard and Farm, whose car was soon speeding toward the Wiley ranch.

It's just a plain little place, that Wiley ranch, but there's a pretty bungalow on it and some very neat outbuildings. The ranch will look better when it's a little older. Wiley and his wife have only been there a couple of years and when they came the seven and one-half acres they settled upon seemed like a desert.

Mr. Wiley showed me his egg records, and they looked all right. They started with the first of September, 1916, and they ended September 1, 1917. No, they didn't end then, for he is still keeping tab on his layers, but owing to the high price of feed they are not doing quite as well this year.

Electricity Did It

The records show that Wiley started with 400 laying hens in September and added 250 more on the first day of the following month. So that the showing made is practically for 650 hens, though he averaged it from the first on the basis of 400 and made proper deductions.

One hundred and ninety-five eggs apiece for the year is what the average shows, and if anybody has beaten it for 400 or 650 hens let him send in his record and Orchard and Farm will be glad to print it.

"To what do you attribute your success?" was asked of the poultryman.

"Why, I think electricity did it," was the reply. "I was one of the first in this district to use electric lights in my henhouses. It has paid me well. As nearly as I can estimate, my egg production went up 50 per cent after the lights were turned on. That was on October 16, 1916. On that day the 650 hens laid 225 eggs, and they were mostly young hens. On the 16th of November the same hens laid 397 eggs, and the daily average record for November was 55½ per cent.

"I am satisfied that electricity has helped my egg production from the first, and it has kept it going right along. My average for the year was 53 per cent, and I could not have kept it up that high had it not been for the lights."

The lights go on automatically by means of an alarm clock at 3:30 a. m. in the shortest days, and are gradually turned on a little later as the days get longer.

The Hens Eat More

Getting off the roost so early, the hens eat more and consequently lay more. Their day, however, is not much longer, as they go to roost a little earlier than if they did not awake so early in the morning.

One effect of the lights, Wiley thinks, is that the hens have wholly escaped roup. They are certainly as healthy looking a flock as one might find anywhere.

As soon as they are off the roost in the morning they begin to eat. Nobody has to get up any earlier on account of this as the hoppers are filled with dry mash the night before. There is also plenty of water handy, as it comes trickling from the spout and the supply is constant, or would be if the pressure were even, though sometimes it is not.

The Wiley hens moulted a good deal later than if electricity had not been used.

Mr. Wiley began his poultry operations on January 1st, 1916, when he erected his houses and prepared for his flock. He bought his baby chicks in February. He had 850 pullets on August 1st. He now has 1130 hens and will add 2300 chicks this month. He has been building new hen houses and getting ready for more extensive operations, not being in the least daunted by the high price of feed, though barley at $3 a sack makes a good many poultrymen want to quit the game.

Wiley's income for the record year

(Continued on Page 24.)

These Holloway Hens Lay in Electric-Lighted Pens.

New Burbank Products

White Flax, Peppers and Cucumbers

By Luther Burbank

IN May, 1872, in a little New England town, I held in my hand one seed, ten of which would not have been as large as an ordinary pinhead. From this tiny seed the Burbank potato came. More than 500,000,000 bushels of this potato have been raised during the past forty years—enough to make 1,660,000 carloads, which would make up a solid train of potatoes that would reach more than half-way around this planet.

Some 7,000,000 bushels of these potatoes were grown in California last season. In 1910 over 16,000,000 bushels were produced on the Pacific Coast alone. In 1915 in San Joaquin County, 4,575,000 bushels were raised, 4,000,000 bushels being shipped from that district according to official reports. It is the standard tuber on this coast today and brings the highest price of all potatoes. It thrives as well here today as it did in Massachusetts forty years ago. This is one of the proofs that varieties do not necessarily run out if grown in a suitable environment. At the present time it thrives and is grown on nearly every island and continent in the world.

During the past few years I have produced and introduced a hundred plants as valuable, but as yet less well known than this potato, and have hundreds yet to introduce as priceless in value.

New Burbank Flax.

The United States of America produces an average of $33,000,000 worth of flaxseed annually. Its uses are too well known and too numerous to mention. Some ten years ago a company of French artists urgently requested me to produce a flax which would make a natural limpid white oil, as the clear colors of their pictures were blurred and deadened by the oils which they were obliged to use.

From a small sample of seeds of some light brown East Indian flax which they had obtained, and which reverted to the original dark for several years, I have now the most remarkable flax ever produced. The seeds of the Burbank flax are of nearly double the size of any other, are of a beautiful limpid white, and yield 12 per cent more oil per pound of seed. The oil is more readily extracted and with less waste. The plants are as hardy and fully as productive as the ordinary flax. The Burbank flax will be welcomed not only by artists, but by printers in general, manufacturers of [illegible] cloths and linoleums, by druggists and for home use by everybody.

New Peppers and Cucumbers.

From Mexico some eight years ago, I received from my collector a giant sweet pepper of great size and fine sweet flavor. From this I have developed the largest sweet pepper ever grown, fruits nine inches long and four inches through, with a thick, sweet meat, have been grown, and when placed upon exhibition people could not believe they were peppers. At the great Panama Pacific Exposition or at the recent Land Show these peppers one half as large were exhibited. The plants are productive and as easily grown as any other.

The "lemon" cucumber, a native of Central America, is quite a distinct species from the long green cucumbers so universally grown. It is small and not a good form for slicing, yet the quality is so superior that it is grown more and more extensively each season for home use.

By crossing this species with Burpee's long snow-white cucumber, sent out a few years ago, a new and wholly distinct strain has been produced, which surpasses all other cucumbers in crispness and delicacy of flavor and is of large size and astonishingly productive. In the combination of these good qualities it is unequaled by any other cucumber.

A Delicious Breakfast Food

Among the tributes paid to Montezuma by the pueblos of Mexico was a certain grain of ivory whiteness and more minute than a mustard seed, called by the Aztecs huauhtli. This seed was described in 1629 by Herrando Ruiz de Alarcon as "smaller than mustard seed" and ripening when the temprano (early) maize begins to tassel. Alvar Nunez Cabeza de Vaca also found this grain to be a food staple on the west coast, taking the place of maize. The botanical identity of this seed, which was for a long time unknown, has lately been named by Sereno Watson, Amarantus leucocarpus.

This plant has been under cultivation and close observation on my

(Continued on Page 12)

How a Homesteader Won

Landis and His Valley-of-the-Moon Ranch.

By Louis Bartell
Of Eldridge, Sonoma County, Cal.

THE very existence of the human race depends upon a proper solution of the land problem—bringing the landless man to the manless land and showing him how to make good. Every section of the country must necessarily have its own way of solving the problem. Much has been done, more must be done.

How one man and his wife solved the problem for themselves is shown in the very unusual and interesting case of W. A. Landis of Sonoma Valley, California.

He was working for another man, his wife was working for another woman, on that other man's and woman's land, and receiving only a stipulated pittance for their labors.

"Why not," they reasoned, "combine our labors on our own land and thus derive the total results for ourselves?"

Arriving at a logical conclusion and completing a physical task are about as alike as day and night. The intention and ambition were there, but where, oh where, was the land? They loved Sonoma Valley. Here they wished to remain. But desirable land was held at pretty high prices. Was not this valley settled one hundred years ago, and consequently cultivated and improved ever since?

A Modest Beginning

Mr. and Mrs. Landis were not rolling in wealth. A number of reverses in rapid succession had sadly depleted their savings account. Also they were both past two score years of age.

They spent every evening for a month in reading real estate literature. The good and cheap land was too far from Sonoma Valley to suit their particular desire and nearby land was too high in price to suit their purse.

Partly by accident, and partly through a suggestion of a friend, Mr. Landis knew of some land a short distance up in the hills, apparently the property of no one, except perhaps a pre-emption held by coyotes and jackrabbits.

He looked the tract over one day and saw possibilities. Another day he viewed it and decided that at least it would be worth trying. Next he went to the land office and filed on 160 acres of this land, his friends [illegible] him of the [illegible] that the Government was [illegible] against his [illegible] that he would be starved out in less than five years.

Hard Work Did It

He went to work on his homestead. [illegible] recent years at least one in Sonoma Valley. The view down the valley was glorious, magnificent, an inspiration for an artist or a poet, but the outlook on the [illegible] homestead was enough to discourage the most enthusiastic agriculturist.

There were trees to cut. There was much brush to grub. There were rocks to be removed. [illegible] be provided for his [illegible] and also some kind of a dwelling for themselves.

A couple of pine scrub oak [illegible] oak and [illegible] the land. Where the [illegible] through the brush [illegible] and rustled.

There was just one [illegible] the [illegible] but at least a [illegible] a farm and [illegible] to their [illegible] there was the [illegible] again [illegible] obliged to abandon their [illegible]

Solves the Water Question

The first [illegible] Mr. Landis [illegible] clear cool water [illegible] between the rocks [illegible] springs [illegible] depths of water [illegible]

[illegible]

(Continued on Page [illegible])

We Want Farming Facts

Orchard and Farm Asks for Personal Experiences of Ranchers Illustrating Successful and Unsuccessful Experiments in All Phases of Agriculture

ORCHARD AND FARM asks you to send in little stories of experiments you have made in farm work that proved of value to you, and also accounts of unsuccessful experiments that would be a guide for others.

We want Orchard and Farm to be a meeting place of the farmers of the Pacific Coast, where they can exchange experiences and profit by such exchange. Practical farmers everywhere are continually devising some new wrinkle as to cultivation, or irrigation, or fertilization, as well as schemes as to livestock raising. A practical farmer's ingenuity frequently results in the production of an idea or practice as valuable as that evolved by a professor of agriculture.

All of these communications will be saved. The best will be printed, and at the end of a year a committee will pass upon them. This committee will consist of representative agricultural experts, each man the head of a division of the College of Agriculture. The names selected are as follows:

John W. Gilmore, Division of Farm Management.
Gordon H. True, Division of Animal Husbandry.
C. L. Roadhouse, Dairy Industry Division.
J. E. Dougherty, Poultry Division.
W. L. Howard, Division of Pomology.
Frederic T. Bioletti, Division of Viticulture.
Frank Adams, Irrigation Division.
Herbert J. Webber, Director of the Citrus Experiment Station, Riverside, Cal.

The communication that is regarded by the committee as having proved of the most value will be awarded a prize of $50. The one second in value will receive a prize of $25. The third in value will receive a prize of $15. The fourth, $10, and the fifth in value, $5.

Now everybody wake up and write to Orchard and Farm as briefly as possible and as clearly as possible, so that there can be no mistake as to your meaning, about the original thing you have developed on your place that you regard as having been of the greatest value to you and your farm.

A New Apple District

Yucaipa's 5000 Acres of Young Trees

By Burton Hale

IN California apples grow best at an altitude of over 2000 feet. Apples are not a tropical fruit and thrive in a section where there is a snowfall, however light, every year. Good soil is another requisite.

The men who are planting thousands of acres of apple trees in Yucaipa Valley, in San Bernardino County, Cal., are assured that they have all the right conditions for the favorable growth of their fruit and they are banking on the experience of former residents, who have produced as good apples in Yucaipa Valley as are to be found anywhere in the world, not even excepting the Hood or Rogue River districts.

Seven years ago the colonization of the upper or bench lands was begun, and since then 5000 acres have been planted to fruit, mostly to red winter apples. This fruit, when grown in perfection, is one of California's most profitable horticultural products, and the conditions in Yucaipa are ideal. The orchards are now coming into profitable bearing, and in the very near future the valley will be known as the largest apple district in the State.

In three years more the orchards already planted will yield between 2,500,000 and 3,000,000 boxes, or from 4500 to 5000 carloads, annually of choice winter apples.

Most of these orchards are owned in 5 and 10-acre tracts, which means that the valley will have a large population and support a prosperous city in its midst. Yucaipa City is already a thriving town, with its stores, hotel, newspaper, churches and schools—but no saloons. With the wonderful resources of the valley, the town will probably have a population of 10,000 to 15,000 when fully developed.

"From the viewpoint of soil, water, climate, scenic beauty, variety of products and accessibility to markets," says George W. Hopkins, a well-known pioneer of the district, "Yucaipa Valley measures up nearly 100 per cent perfect.

"First, we will take climate. The valley, with its 18,000 acres, is, properly speaking, a foothill valley, surrounded and protected from damaging winds by the foothills to the south and west and the mountain ranges to the north and east. It has an altitude of from 2250 to 3500 feet, and is therefore free from the extreme summer heat found in the lower valleys, while the summer days are sufficiently warm for the perfect maturing of its varied products. The atmosphere is light and dry, entirely free from fogs, and such a thing as oppressive days are unknown. The winter climate is delightful, with an occasional flurry of snow, just enough to make our neighbors from the East feel at home.

Plenty of Water

"Water is next in importance to climate, and in this Yucaipa is particularly fortunate. Located at the base of the mountains, it enjoys a uniformly large rainfall, ranging from 22 inches on the lower to 30 inches on the upper levels. This, with proper cultivation, renders more than slight irrigation superfluous. In fact, much fruit of excellent quality is matured without irrigation, although water is used generally throughout the valley. There is considerable gravity water, furnished by the flow in Triple Falls and Potato Canyons, and there are numerous wells producing from 50 to 100 inches each. These wells have demonstrated that the entire valley is underlaid with ancient river beds, which furnish an inexhaustible supply. The numerous wells of the municipal plant of the city of Redlands, lying to the west, receive their supply from the underground streams of that district.

(Continued on Page 33)

Part of the Five Thousand Acres of New Apple Orchards.

What Roseburg Did

Prosperity Comes to an Oregon Town

By Robert U. Brown

PROSPERITY has come to Roseburg, Ore., because intelligent means of inducing land settlement in its neighborhood have been practiced here.

Fifteen or twenty years ago much of our land was in large holdings. Many farmers raised grain and hay and the land yielded only a small portion of its possible returns. Here and there a farmer began to raise fruit or berries. We entered the subdivision stage. "Back to the land!" was the cry. "Escape the city grind and make a good living on five acres in the beautiful Umpqua Valley."

The propaganda was spread through cities and towns of the Pacific Coast. The tracts were obtained for sub-division purposes. Some of the land was good and some of it was not. These small tracts were sold to clerks, to professional men, to school teachers—in short, to almost everybody except farmers.

Novices Try Farming

They arrived and tried to earn their livings on the five and ten-acre tracts. The land did all that could be expected, but the simple fact remained that only in rare cases would an area of this size yield a decent living for a family. Furthermore, the men who took the land did not know their business.

We knew we had a rich valley here, and we knew what it could do. We had implicit faith in small holdings, but we realized that they must not be too small.

About ten years ago farmers here and there began to plant orchards of from 30 to 50 acres, and to carry on truck gardening between the trees. They all made good livings. We believe this to be the solution of the Umpqua Valley land problem—to get the land into holdings small enough to provide livings for a large number of agriculturists and to procure real farmers.

Real Farmers Needed

This idea was kept constantly in mind in the furtherance of development projects. Personally, in selling land, I discouraged purchases by men who did not thoroughly understand farming. I also discouraged the five and ten-acre farm idea. The genuine prosperity which this brought about attracted intelligent and capable farmers. Through co-operation with the State Agricultural College, we gradually got the farming business upon a pretty exact scientific basis. We worked out a dependable rotation of crops, we figured closely on the markets, and we learned to get the utmost yield from the crops between the trees.

Fearless Experiment

We have not been afraid to experiment. Recently there has been a large acreage of a certain species of cauliflower, ideally adapted to this valley. It is proving extremely profitable.

Our experience has been that ill advised boost campaigns and subdivision projects which attract men with neither the means nor the training to weather the first few years of a farming venture are decidedly harmful. The old condition of large holdings, loosely cultivated, was better than this. But, having learned our lesson, we regard small holdings and a large number of capable farmers as the ideal condition.

One of the Sources of Yucaipa Water.

Panoramic View of the Valley and Vicinity.

We shall regard the war as won only when the German people say to us, through properly accredited representatives, that they are ready to agree to a settlement based upon justice and reparation of the wrongs their rulers have done.—President Wilson.

Squashes as a War Crop

Their Wonderful Growth in California

IN looking over the field of production for 1918 our farmers and gardeners should not forget the squash. Here is one of the prolific and best keeping vegetables in the market, and California is its home.

As examples of what can be done in the way of gigantic vegetation in a short time the mammoth squash has often been used to illustrate the wonders of California production. Here is a single record that stands out in the history of vegetable growth in this State as the marvel of all who have heard about it. Frank E. Kellogg of Goleta, Santa Barbara County, who is vouched for by Prof. E. J. Wickson of the State University, provides this statement:

"I planted my squashes in May, and harvested them in October. Finding that they were unusually large, I weighed 10 of the largest and found that their aggregate weight was one ton and 50 odd pounds, the largest one weighing 225 pounds. This squash was exhibited at the county fair and received the first prize.

Mother Hubbard's Children

"On the 15th of November, which was my boy's sixteenth birthday, I cut open one of the other squashes that weighed 210 pounds and took out the seeds; my boy then got into it and I put the pieces together and completely closed him in, the parts coming tight together. I then persuaded my eighteen-year-old daughter to get into it and I closed her in.

"My daughter's weight was 110 pounds. I then put two seven-year-old boys in at once. I then put my three little girls in at once; they were aged respectively six, four and two years, their united weight being 116 pounds. I placed the largest child in the bottom and the little one on the top and then put on the lid; the squash was cut so that the top could be easily put on or removed.

"The squash was three feet four or five inches in length."

In a community war garden on a large vacant lot in Berkeley, Cal., squashes were planted last season by a score of citizens who gathered in a "bee," and after the ground had been plowed and harrowed proceeded to plant the seeds and to water and care for them. Although the results were not altogether satisfactory, they afforded an example of what might be accomplished by a squash club working on the plan followed by this group of amateur gardeners. The squash was selected by the Berkeley men because it was easily cared for and under common conditions will produce large crops of a good nourishing food.

How to Grow Squashes

Squashes should not be planted too early, for they are rather tender and the frost will wilt them. The hills containing the plants should be spaced about ten feet apart, though some gardeners are in favor of much closer planting. Three or four seeds to the hill or more may be planted and afterward thinned down so there are not more than two plants in a hill. Cultivation should begin as soon as the squashes are up. A horse should be used along the row and a hoe near the plants.

Keep the top soil quite mellow and weed out every other kind of plant growth that appears. Keep up your cultivation as long as you can do so without injury to the vines.

Field operations on a large scale may be conducted on the furrow plan, leaving the furrow for an irrigation ditch. The furrows may be nine or ten feet apart, or a little closer, according to the richness of the soil.

The Hubbard squash is the most satisfactory kind to grow and will require the least attention after once started. The mammoth Chile produces the largest examples of this class of vegetation. Sometimes they produce a wagonload to the vine, but, of course, this is a rare yield.

From mid-April to the first of June is a good time to seed the crop, which may be harvested from September to November.

A Squash Like This Will Feed a Small Family for a Week.

San Joaquin Cotton

IMPERIAL VALLEY has been so successful in the growing of cotton that other sections of the State are waking up to the advantages of that crop. Of course, it is improbable that anything like the vast yields per acre realized by the Imperial grower will be exceeded or even duplicated by other districts, but the more cotton grown in California the more it tends to put the State on the map as a cotton producer and the better it will be for all concerned.

San Joaquin County raises very good long, staple cotton, as has been proved by repeated experiments, and there are sections of the Sacramento Valley where it has thrived in a small way.

Edwin M. Fowler of Los Angeles at a recent cotton conference at Fresno read a paper that told of the development of the Egyptian variety and pointed out the possibilities of the adaptation of it to California. His address was listened to with great interest by farmers of the San Joaquin and Sacramento Valleys.

The result of the conference was a preliminary organization of a cotton growers' association for the upper half of the State. Many farmers say that they are willing to try out a crop on patriotic grounds, as well as to test the statements made by Prof. John W. Gilmore, who has been urging growers to plant cotton as a summer crop on their farms, the idea being to grow a small acreage and take care of it by their families and hired help rather than to plant large tracts.

How Tree Surgery Helps

It Will Save an Old Orchard

By H. H. Newsom
of Berkeley, Cal.

ONE of the questions that has confronted the orchardist is, Can fruit trees be filled to preserve them for their economic value as fruit producers?

My tree surgery operations on fruit trees has convinced me that moderate tree surgery methods will be commonly used in future on the fruit ranch.

The orchardist will eventually be convinced that treating trees not too far gone, and in good bearing previous to the operation, will give good results. I would not recommend the going to extremes, as many trees are hopeless. Trees in an advanced condition of debility and decay, or with long, bare limbs and high, thin tops, are not good subjects to rejuvenate. It would cost more to bring such trees back into bearing, if possible at all, than it would to plant and cultivate new ones.

I have had good results from cavity treatment on forty-five-year-old cherries in the San Leandro district, California. The red heart rot fungi is easily removed from the diseased cavities and comes out in brittle slabs, resembling decomposed wood.

How Surgery Helps

Some of these cherries treated on the orchard of Charles Hale are now as sound as new. While the fillings did not increase the fruit production, the topping of the old trees did. The part the surgical operation played was to preserve the trees and guarantee good future crops.

On some fine old Royal Annes in the orchard of Warner McCann in Berkeley on which I operated, the results were very satisfactory, also. After the excavating, sterlizing and painting, the cavities were then studded with nails in the shallower parts, and wire rods were inserted in the middle of each long cavity. The rods worked on the same principle as a wick in a candle. The fill around the rods was packed hard with a tamp and worked into every pocket and around the nail studding. Then the mixture was brought out to within a fraction of an inch of the outer edge of the sap wood, and slicked down with a moulder's slick to allow the cambium to roll over and eventually close the wound.

Use a Dry Mixture

To prevent the sway of the tree from making cracks in the filltar paper joints were made, the cement being put in, in sections. The dry cement mixture consisted of two parts sand to one of Portland cement, mixed dry enough to build up.

To make the trees more rigid, small screw eyes were inserted in the larger limbs above the weak crotches, the limbs were then held up by wire guys fastened from screw eye to screw eye, and drawn tight.

The cherry trees are now solid and rigid as new, and are good bearers.

I have treated many apricots, and have found that they respond readily to tree repair.

The pear is another good tree to give cavity treatment to, some forty and fifty-year-old Bartletts in the Lake County district thus treated now bear well, and it is certainly worthwhile to give such producers all the care that is necessary.

Decay in Many Trees

The open system has proven satisfactory to me on trees badly gutted with soft fungi from tips to roots. By gouging the fungi growth away from the sap wood and bark, and sterlizing and painting, the producing power of the tree is often prolonged many years. If trees are closed up where soft punk is still at work, the filling oftentimes encourages the fungi, as the fungi does not get a chance to try out, as in the open system.

The apples and peaches that I have treated have been good subjects to work upon. While I have found that the slightly infected trees are readily treated—the badly infected ones are rather difficult to handle owing to the root-to-tip spread of the heart rot. However, this does not mean that many subjects of this variety cannot be entirely cured.

It is declared that in Central California nearly fifty per cent of all bearing stone fruit trees are infected with wood decay. From my own observations and experiences, I can safely state, that a goodly proportion of these trees can be restored, and profitably, from an economic standpoint.

About Materials

The materials are bought in quantities, and the pruners, under the directions of an expert, are taught to treat the trees as they prune. This means a big saving in materials and labor. Besides the pruner's regular equipment, the repair kit consists of a gouge, chisel, mallet, hammer, pliers, molder's slick, sterilizer and paint pot. Additional tools can be added if necessary. The materials used generally are grade D asphaltum, or pruner's compound, cement, sand, tar paper, nails, bolts, wire, screw eyes and sterilizer. The less costly moderate method, now practiced in some districts, is the sterilizing and painting of large cuts and wounds and wire bracing, to do away with some of the props. The cavity work in this case simply consists of the open system—that is, to excavate, sterilize, dress and leave open, without the extra expense of filling.

If you can't raise a pig, save one. You can do so by eating less pork.

Food Returns All In—California's Proud Showing

Big Percentages of Nation's Products Grown in This State

DID CALIFORNIA do her share in crop production during the year 1917?

Whoever doubts it should scan the accompanying figures carefully.

Think of a single State producing, as California produced last year, 20 per cent of all the barley grown in the country!

Better yet, think of a single State producing, as California produced, 22 per cent of all the sugar beets grown in the entire nation!

Still better, look at California's onion yield—29 per cent—one-quarter of the whole!

Look at that California item of hay—4,560,000 tons, or about 6 per cent—and then try to realize what its total valuation of nearly $100,000,000 means to the State.

Look at the beans! Fifty-one per cent, or over half of all that were produced in the whole country!

How about the hops? Fifty-seven per cent!

Cantaloupes? Forty-one per cent!

Then look at the deciduous fruits: Pears, 27 per cent; peaches, 31 per cent; prunes, 97 per cent!

Raisins, 93 per cent! Olives, 95 per cent!

And now we come to the citrus fruits. Oranges, 79 per cent; lemons, 100 per cent!

The California Fruit Growers' Exchange is authority for the statement that no other State in the Union beside California is now producing lemons commercially. What the other States do produce is not 1 per cent of the whole, and California is now supplying 71 per cent of the American consumption, the other 29 per cent coming from foreign lands.

We did not raise all the green figs, but of dried figs practically all, and they are set down at 100 per cent, for no other State produces them commercially or ships them, which amounts to the same thing.

Of course all these figures are on a purely commercial and shipping basis, but they do not favor California as against other States.

How does California's production compare acre for acre with that of other States? This would be difficult to answer, but the 12,000,000 acres of improved farm land with which the last census credits us is but 1 3-10 per cent of the 900,000,000 acres of cultivated land in the United States.

Iowa, the greatest farming State in the country, with more than twice the improved area of farm land, makes a fine showing with her corn, about 16 per cent of the total yield; but our 20 per cent of barley tops that, though in corn we show a small production. Iowa is ahead of us in wheat, with nearly 2 per cent of the whole yield of the nation, but in fruits her yield of apples—a standard crop in that section—is far below ours. And please be reminded again that Iowa is a State of twice our cultivated area.

These figures are all taken from Government records and estimates—that is to say, all except the citrus statistics, which have been strangely reported by Government experts, and do not agree with those of the California Fruit Growers' Exchange, which provides us with all the citrus figures and counts the orange year as from November 1, 1916, to November 1, 1917.

The nut figures are furnished by the California Walnut Growers' Association and the California Almond Growers' Association. The fig figures are from George C. Roeding of Fresno and the raisin statistics from the California Associated Raisin Company.

Orchard and Farm is not given to over-estimating crop yields. Its October estimate of the total value of California's 1917 crop was $500,000,000, but Government reports bring that value up to $677,338,600.

If statisticians are correct in estimating the total value of the nation's 1917 crops at $10,000,000,000, then California produced 6.7 per cent of the whole on a cultivated area of only 1.3 per cent of that of the whole country, and with but 3 per cent of the total population, and less than 2 per cent of the farming population.

It is the proudest showing made by any State in the Union.

CALIFORNIA CROPS COMPARED WITH UNITED STATES PRODUCTION

Crop.	California.	United States.	California's Per Cent.
Lemons, boxes	2,934,292	2,934,292	100
Figs, dried, pounds	13,120,000	13,120,000	100
Almonds, pounds	7,600,000	7,700,000	98
Walnuts, pounds	30,800,000	32,100,000	96
Olives, pickled, pounds	5,641,759	5,900,000	95
Raisins, pounds	315,000,000	340,000,000	93
Prunes, dried, pounds	218,000,000	235,000,000	93
Apricots, dried, pounds	30,000,000	31,000,000	97
Oranges, boxes	19,507,607	24,433,000	79
Hops, pounds	15,708,000	27,788,000	57
Beans, bushels	8,035,000	15,701,000	51
Cantaloupes, crates	3,206,700	7,788,400	41
Peaches, bushels	14,151,000	45,066,000	31
Pears, bushels	3,523,000	13,281,000	27
Sugar Beets, tons	1,700,000	7,600,000	22
Onions, bushels	3,948,000	13,554,000	29
Barley, bushels	39,150,000	201,659,000	20
Honey, pounds	6,240,000	55,700,000	11
Hay, tame, tons	4,560,000	79,528,000	6
Hay, wild, tons	259,000	15,402,000	2
Potatoes, bushels	15,225,000	442,536,000	3
Apples, bushels	5,592,000	174,608,000	3
Rice, bushels	5,600,000	33,256,000	2
Wheat, bushels	7,425,000	659,797,000	1
Sweet Potatoes, bushels	1,002,000	87,141,000	1
Cotton, bales	67,000	10,949,000	0.6
Oats, bushels	6,860,000	1,587,286,000	0.4
Corn, bushels	2,400,000	3,191,494,000	0.08

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USE UNIVERSAL ORCHARD SPRAY NOW

My Spud Experiences

By D. J. Whitney
of Exeter, Tulare County, Cal.

POTATOES have been for years and for years will be, one of the great foods of America and Europe, and by the same token, they have been and will be, one of the most commonly grown crops. An account of experiences with them ought, therefore, to be of some interest.

In 1916 there were grown on my ranch two cars of Irish Cobbler potatoes; yield was heavy, quality good. The variety was selected on the strong recommendation of W. V. Shear, secretary of the West Coast Potato Association and then potato expert for the United States Department of Agriculture. This variety, it can be said, though new to California, has proved a very vigorous grower, a heavy producer and very early as well.

The practice on the "plains" was to plant about the first week in March. Mine were planted about March 10, 1916, and reached San Francisco a day or so before the middle of June. I was living in the bay region then and was on hand when the cars reached San Francisco. I found the wholesale district filled with early potatoes, shipped in from Southern California and from many other places much closer at hand, the market just then from a combination of circumstances getting about as low as it did any time in the year.

"How about this?" I said to the dealer who handled them. "I thought I was in an early section, and I find the market filled with potatoes."

"What time did you plant them?" he said. "Early in March," I replied.

"If you wanted early potatoes why didn't you plant them early?" he said. "Along the Sacramento River we plant in the middle of January. We take a chance on the frost, but that is the best time for us, frost or no frost."

There were we, in the great citrus belt of Central California, one of the early districts of the State, planting about the first of March, while along the Sacramento River, with nothing particular to boast of on account of frost immunity, they were planting a month and a half earlier. A man certainly cannot be certain that the way that is followed in his section is the right way.

Last winter was one of the coldest in history around here; things were a month late at least, but my potatoes went in close to the middle of February, which was about the same as the middle of January in an ordinary year, and they might have gone in a little earlier if the ground had been ready. A neighbor to the west planted some of his crop a few days earlier than I did. We were, if my suspicions were correct, two champion fools, in potato raising, at least.

Twice after the potatoes were above the ground frost browned up some of the leaves, but that was the extent of frost injury. My main crop was British Queen potatoes, since I bought seed too late to secure Irish Cobblers, and they were dug and shipped June 10 and 11, nearly as late as usual on account of the cold spring and on account of being a later variety, but just in time, even at that, to reach a strong market, selling for $3 per hundredweight, f. o. b. cars at shipping point.

Other potatoes, planted at what was equivalent to the first of March in an ordinary year, were harvested about three weeks later, when the market was very weak, and hung

(Continued on Page 30)

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Home Garden

By Mrs. E. E. Paquette

1118 Poli St., Ventura, Cal.

HERE in California where we have the mildest possible winters we can feel the spring in the air, see it in the pulsing tender growth and hear it in the merry songs of the birds. And every thing is saying "get busy." The only things that cannot be planted now are those things that are of a strictly tropical nature, such as cannas, foliage plants and dahlias. I have planted dahlias here in this "frostless belt" in February and had good success with them; but if there is one bit of danger from frost do not plant them for a month.

However, if you have a rare variety and want to enlarge your stock, you may plant the bulb in a protected place and when the new growth starts break off the slips and root in a sand box. They will be rooted and ready to plant out by the middle of May and will make good, strong plants this summer. Seeds of dahlias may also be planted now in a seed box and will make good, strong plants and be ready to plant out by the time all danger of frost is past.

Make your first planting of summer and fall blooming flowers now. Asters, snapdragons, salvia, stocks and tender begonias should be planted in seed boxes, and sweet peas and sweet Williams, as well as hardy annuals, should be planted in beds and borders.

Now is the best time to divide Shasta daisies, golden glow, golden rod and all herbacious perennials.

Cuttings of carnations, begonias, foliage plants and also cuttings of hardwood plants such as lilacs, snowballs, lemon verbenas and hydrangeas will root readily if put in a clean sand box now.

Plant gladiolus, tuberose, iris and other bulbs that you have not already planted.

Planting Evergreens

"I want to plant several evergreens, cedars, cypresses and pines. When is the best time for planting?"—L. L. M., Santa Cruz, Cal.

The time for planting evergreens varies according to climate. But any time from now until May is good. When they are ready to start a new growth in the spring, when the air is moist and the soil warm, and everything feels like growing, is the best time for evergreens to be moved. Even then it is best to move evergreens with a ball of dirt around the roots if possible.

One Dozen Roses

"I read with interest your description of the 'One Best Rose' and am going to ask you to help me decide on about 'One Dozen Best Roses.' I am making my first flower garden and want to plant only the roses that do best. What are the best climbing roses?"

In naming the "best dozen" I will have to give them from my own point of view, and will divide them into four divisions, whites—Frau Karl Druschki, white Cochet and Kaiserinc Agusta Victoria. Reds—General McArthur, Rhea Reid and Ulrich Brunner. Pinks—Madame Able Chatnay, Madame Leon Pain and Caroline Testout. For yellows and mixed shades—Sunburst, William R. Smith and Nebbonand.

Climbing roses are more dependent on climate and purpose for which to be used. For a thick heavy foliage the Wichuranians and bamksias are good, although almost all the Wichuranias mildew badly near the coast.

For quality in bloom the climbing Testout, Kaiserine and Wootton are good. The well known Cecil Brunner or baby rose makes good foilage. The dainty little roses are always in demand for cut flowers.

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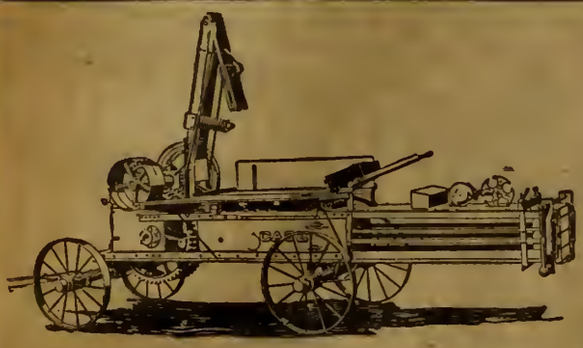

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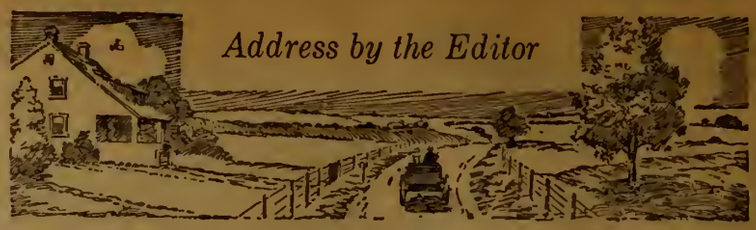
Make Farm Life Attractive



Address by the Editor

THERE is no well-defined movement in this country to make farm life attractive to the average man or woman of the city. Still there are what may be called favorable symptoms. Orchard and Farm has hailed these in the vague and sporadic operations of the Smith-Lever act and in other slight manifestation. Also it has done what it could in an editorial way to help social conditions on the farm. Its editor recently made an address before the Gamut Club of Los Angeles on this subject, saying in part:

ONCE a man named Hapgood wrote a book called "The Penalties of Taste," which I have read and do not care to read again, but for years the title has stuck in my mind. "The Penalties of Taste" that title is a book in itself.

As you, of course, have discovered, there is no man or woman who suffers quite so much as the one who has the fatal yet blessed gift of artistic temperament. The law of compensation works out here as it does everywhere else. To be a good writer, a good artist, a good actor, a good musician is to have keenly sensitive nerves, and to have keenly sensitive nerves is to suffer.

Now Webster's synonyms for "suffer" are "to permit, to endure, to admit, to bear, to tolerate." There was one who said, "Suffer little children to come unto me," and I suspect that much of our suffering is properly subject to that classification. We suffer it to come unto us.

Aside from the artistic class to which you belong there are many mediocre persons with a smattering of intellectuality, mainly borrowed, who think they could not possibly live under what they term rough conditions. You have seen such persons look out of a car window upon a great desert and you have heard them say, "What an awful place! Thank heaven I don't have to live here!"

They Lack Faith

The trouble with such people is that they lack faith. They are full of fear. They are too gregarious. If they had faith they would love the desert—they would be inspired by it and by the blue mountains beyond, and say, "How wonderful it must be to live here and enjoy the freedom of this place!"

In the same way the cityfied man or woman goes out into the country, with the idea of buying some land and settling down. They see a ranch. Perhaps the ranch is badly kept. It looks lonely. The house is not painted. There is litter about the front door. The outbuildings look shabby and about to fall down. The rancher and his wife and children are slouchily dressed. The children are not clean. The city visitor turns up his nose. "No farming for mine," he declares, and he goes back to his office.

Here is one of the penalties of taste—city taste. And yet the farm can be made and sometimes is made ideal.

A Good Example

Here and there you will find a pretty bungalow, surrounded by a well-kept yard and neatly whitewashed outbuildings. You will find the farmer in a neat denim suit, his wife with her hair well brushed and with a clean shirt waist on, and the children with fairly clean faces. These things have happened. They would happen oftener if there were more general education along these lines.

As editor of Orchard and Farm I often have pointed out that the reason why it is so difficult to keep young men upon the farm is because the young women hate the life and leave it for the city. Naturally the young men follow after.

This great sociological and economic error could be corrected. You may say it all depends upon the man—that the farmer can make his farm attractive to his women folk and to others. But human nature is frail and dependent. It needs encouragement. Our federal government could and should do more than it is now doing to help make farm life attractive to young people and old. Once we had a Farm Life Commission. All it did was to look around a little and make an elaborate report. What it should have done would have been to urge a definite plan of legislation looking toward the improvement of sociological conditions in farming centers. These can be improved upon by making farm life more attractive

Government Should Help

That life can be made more attractive by making it easier. The great curse of the farmer, particularly the one starting out in a new place, is lack of capital. This should be made

Once when old John Muir was tramping about in Tuolumne County he saw a sign, "This Ranch Fur Sail."

"When do you expect to set sail?" he asked dryly of the rancher, a dejected-looking creature, sitting on the fence.

"When somebody comes along who kin raise the wind," was the still dryer reply.

"Well, it won't be a farmer," observed Muir.

"Why?"

"Because farmers can raise everything but the wind," said Muir.

"Wal, it's all right jest as long as yeh ain't a gentleman farmer."

"What's the matter with gentlemen farmers?" asked Muir. "What's your idea of a gentleman farmer, anyway?"

"Why a gentleman farmer is a farmer that don't hardly ever raise nothin' except his hat."

But it is really no joke—this lack of capital among the tillers of the soil. And yet in these days of elaborate credit it should be as easy for them to borrow money to buy land and produce crops as for the city man who wants to build a store and stock it. And instead of paying the highest rate of interest the farmer should pay the lowest.

The Farm Loan Act? Yes, millions have been loaned to farmers under its provisions. It sounds big, but it only has been a drop in the bucket, and has helped the new, struggling farmer not at all. Prosperity for him would mean better living conditions.

However, aside from these considerations, the refined city man and his wife who go out to live upon the farm and want to keep up a decent appearance are in for a struggle. But what is it that is worth while that ever comes without a struggle? And how shall he ever wholly escape the penalties of taste?

BIG MONEY IN TRAPPING

There is a STRONG DEMAND for California Furs

Write for our Fur Price List and 36-page FREE book

TRAPPING FOR PROFIT

Tells HOW, WHEN and WHERE to Trap. Shows how to make Sets. Tells you proper method in Skinning, Scraping and Curing Pelts, and the right BAIT to use.

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for any kind of farm machinery you don't need and want to sell. No matter what it is, write us, giving us a good description of what you have. We want hay binders, cultivators, plows, harrows, drills, harvesting machinery, threshing machines, feed cutters and grinders, fanning mills, windmills, gasoline engines, tractors, blacksmith tools, belting, in fact, anything and everything you have to sell.

Scotty's Place
135 South Los Angeles Street,
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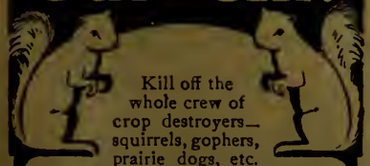
We carry the largest stock of new and used farm machinery of any firm in the State. Visit us or write us and save money.

100 Progressive Pedigreed Everbearing Strawberries 50c. 200, $1.50. Prepaid. Pedigreed Nursery Co., Sedalia, Mo.

Gas 'em!



Kill off the whole crew of crop destroyers—squirrels, gophers, prairie dogs, etc.

Gas 'em with Carbon Bisulphide quickly, easily and economically.

One burrow of squirrels will destroy more grain than your family can save in fifty wheatless days. Remember—these ground pests cost the farmers of the Pacific Coast more than $6,000,000 last summer. So be forehanded—be truly patriotic—*conserve the seed in your fields.*

The University of California says: "From November until the end of February (the rainy season in California) the best way to attack the ground squirrels is to fill their burrows with gas from Carboo Bisulphide."

So too in other states! If the ground is full of moisture, whatever the month may be, Carboo Bisulphide is the best killer of squirrels, prairie dogs, gophers, etc.

A squirrel killed before March is worth a dozen killed later. Because—most young squirrels are born late in March or early in April. *So—gas the old squirrels now.* Write today for prices and interesting folder telling how Carboo Bisulphide—the profit-saver—works.

WHEELER, REYNOLDS & STAUFFER
624 California Street
San Francisco, California

Use CARBON BISULPHIDE

Trapping Fur Animals

By E. R. Skinner

HERE is some further advice on trapping animals and handling furs:

Mink are caught by both water and land sets, but the former is more successful. The animal has a very keen sense of smell, and is not always easy to trap. His favorite haunts are along streams where he dens along the banks, under trees, stumps, logs, thick clusters of grass and growing shrubs.

How to Catch Mink

An entrance to a natural or artificial enclosure, in a hollow log or under stumps along the water's edge are good places to make sets. Fasten fresh bait, such as fish, birds, rabbits,

Set Mink Traps in the Streams.

etc., in such places as to compel the animal to go over the trap when seeking it. A few drops of natural mink bait should be used around the trap.

Traps should be in the water when possible. Select a place along the bank of a stream and dig a hole in the bank at the water's edge about four inches wide and ten inches deep. The trap should be concealed carefully with leaves or grass, in water at the edge of the hole.

Preparing the Set

When possible stake traps out deep in the stream so the animals will drown when they get in the trap. Fasten bait in the hole and before leaving dash water over the entire set to make it look old.

Mink should be cased and dried skin-side out, and the pelt cured in a cool, dry place. Flesh off all the fat and grease while the pelt is green, and do not use preparations of any kind.

In trapping weasels use a light, well-oiled trap that will spring easily, as they are a light animal. Place the trap directly under the bait, which may be a piece of rabbit, a squirrel or a bird suspended from a stick or an overhanging limb and see that everything looks as it did before the set was made.

Weasel skins should be cased and dried skin-side out. When the pelt is dry turn it fur-side out. Be very careful to keep the fur clean and free from blood stains. Leave the legs, tail and head on.

Mountain Lions

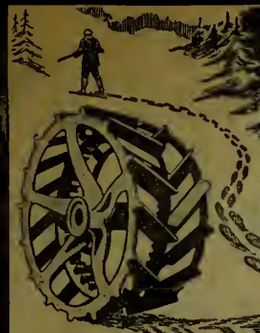
As this is a very powerful animal, large, strong traps must be used and fastened securely to a stake, bush or heavy clog. Hang a large chunk of fresh meat directly over the trap, which should be well covered.

Heavy dead-falls are also very effective sometimes. Take a good drag of fresh meat on which scent has been sprinkled when making rounds.

It's a good plan to take your rifle along, too, for the lion is a wicked fighter, and a swift bullet is the safest and quickest way to end the argument.

To handle mountain lion skins the head and tail should be left on and the feet should be skinned, leaving the claws on. This is necessary, as most pelts are used for rugs and mounting purposes.

The United States has entered the war in the firm belief of victory for right, and has not the slightest intention of stopping until the victory is achieved.—Secretary of War Baker.



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SIEVE-GRIP wheels give support and traction on plowed ground

NOTHING has been made for carrying a man over soft snow better than the snow shoe. The light weight mesh and broad surface, enables a man to travel over snow---the snow shoe gives traction and SUPPORT.

Just so is the action of Sieve-Grip Wheels on soft, plowed ground. The angular grips of the skeleton tread act just like the cross-woven thongs of the snow shoe. The principal of construction and results of both are the same, yet the *material* is different.

The Sieve-Grip Wheel is one solid piece of steel—no parts to loosen or wear out—gives the Tractor ample support—does not pack—It CULTIVATES; and is only one of the features that make for the superiority of

SAMSON SIEVE-GRIP
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TRACTORS

Many hundreds of farmers are doing their farm work better and with more profit as a result of Sieve-Grip cultivation. You, too, can increase your profit and INCREASE CROP PRODUCTION. Let us tell you more about the Snow Shoe Tread Samson Sieve-Grip Tractor. WRITE TODAY.

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Ant Destroyer—in slow acting—does not kill instantly, but gets the nest as well as the parent. Does not lose strength. Positively non-poisonous—no danger to children, house pets or foodstuffs. Send 6c for trial can. Ask your neighbor. She uses it. At your dealer. Accept no substitute. Write Schrader Chemical Co., Dept. O, 19 to 25 Minna St., San Francisco, Cal.

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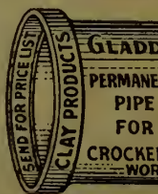

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Write for our booklet, "How Dan Ross Cuts 40 Cords a Day." It is absolutely guaranteed—hundreds in daily use. Delivered anywhere in the U. S. A. only.

$165 Wade's Gasoline Wood Saw
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This wonderful invention does TEN TIMES the work of TWO MEN in the woods. With it you can make money out of your wood simply through the immense saving in time and labor. One man can handle it on a log and two can move it from log to log. *Will cut a 40-inch log in five minutes.* Write us today.

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is a soil necessity to insure the setting of fruit and the production of an abundant crop.

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that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree fo. you from pests.

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These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

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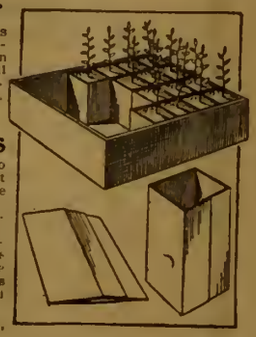

Black Leghorns

New breed on the Pacific Coast. Very fine line of strong egg producers. Line-bred, very vigorous, mature early; fine winter layers. Catalog and mating list free. Hatching eggs, $2 for 15, $8 for 100. Prices on trios and pens on request. Pine Grove Ranch, Route 1, Redondo Beach, Cal.

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We buy and sell.

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CONSERVE THE FRUIT AND VEGETABLES

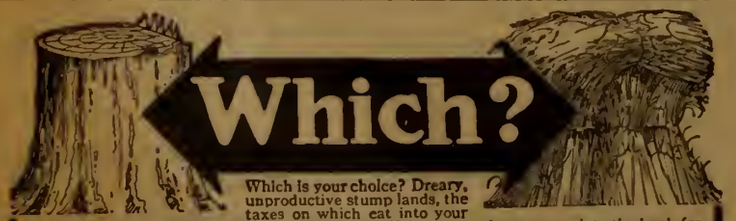
The Sun Fruit Preserver has been given a certificate of approval by the Good Housekeeping Institute of New York City where "A temperature of 160 F. inside the Preserver was obtained on sunny days."

Tested and Approved by Good Housekeeping Institute Good Housekeeping Magazine

Send the Army Boys a box of home-made Crystalized Fruit Confection

Delicious crystalized fruit candy, Sun Rayed berries, jellies, marmalades, fruit butter, preserves, etc., are easily made. All of the fresh fruit flavor and color is retained. Canned pineapple, apricots, etc., crystalize beautifully. Deciduous fruits, vegetables and herbs, when placed in the Preserver part with 60 per cent of their weight. They are sterilized, cured and permanently preserved. It is a proven fact that desiccated vegetables are equal in quality and nutrition to those fresh from the garden.

For $1.00 we will send Pamphlet containing instructions for making all sizes, and recipes for making Sun Rayed jellies, marmalades, preserves, fruit butter, sunshine pineapple, crystallized figs, fruit confection, etc.; for desiccating sweet corn, peas, onions, carrots, parsnips, mint, parsley, celery, etc. The Sun Fruit Preserver can be made by anyone at small cost, its construction is simple. Pamphlet given free to anyone that cannot afford to buy. Save the food, and help to win the war. E. E. DOW & SON, Redlands, California.



Which is your choice? Dreary, unproductive stump lands, the taxes on which eat into your profits? Or rich, cultivated fields that yield bountiful crops, and put money into the bank for you? You can transform your barren stump lands into profitable cultivated fields with a

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Send for Free Book, "The Gold in Your Stump Land." It proves a Kirstin often pays for itself in a single day; that it provides the quickest, cheapest and best way to clear land. It contains photographs of stumps which the Kirstin has pulled, and letters from men who pulled them. Big money to early purchasers in each locality through our Profit Sharing Plan. Write now—don't wait.

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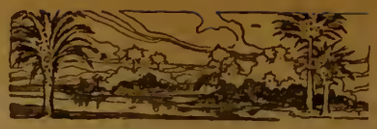

Canned Goods Outlook

By Isador Jacobs,

President of the California Canneries Company.

I CANNOT see how canned goods for 1918 will be any cheaper than they have been in 1917.

We are now confronted with an increase of 60 per cent in box shooks, 10 per cent in tin plate, 35 per cent in labor, and the producers are organizing for higher prices for their products.

If anyone can figure out from this how California goods will be any lower for 1918, I will be surprised.

I believe that radical action will be and should be taken in Washington whereby a fixed profit will be established for packers and dealers, and this will be a good thing, for it will take away the speculative feature and will put the business on a permanent, stable basis, which should and will be more satisfactory to the packers as well as the consumers.

The Federal Trade Commission has been working on these matters for the last six months, having accountants out all over the country obtaining a basis of manufacturing costs so as to assist in the naming of distributing prices and I anticipate that this will meet with satisfactory results.

My New Plants

(Continued From Page 4)

farms for ten years or more and has been greatly improved by selection; a more delicious breakfast food was never offered to America. The plants are grown with the least possible care, like other grains or corn, and will produce a great weight of seed per acre, but in some localities it is subject to the attack of aphids, which no doubt has been the cause of its general disappearance during the past three centuries. By sowing the seeds early around the edges of fields and gardens, or in fields like corn or wheat, a good supply may be raised anywhere in almost any climate. The seed is prepared directly for food simply by pounding a few minutes in a sack to remove the outer husk, then it is rinsed and cooked like other breakfast foods, and is also ground and used for bread and cakes.

An Improved Sunflower.

In 1909 sunflower seed was grown in the United States to the amount of 63,677 bushels. Last season there was shipped out of one California town by one buyer, 1275 tons, for which $76,000 was paid to the growers.

Sunflower seed is used for feed and for oil. All sunflower seed has heretofore been black, brown, or striped. Manteca was produced on my place several years ago by crossing the well known black seeded double California sunflower with the Giant Russian, which has black striped seeds. The result was, after many years of careful selection, Manteca, which is a greatly improved pure white seeded Giant Russian, which produces enormous single heads on short stalks, instead of the usual big and little mongrel heads on tall, unsightly stalks, so generally grown. No other kind can compete with this productive snow-white variety. It will transform the sunflower business as the Burbank potato has transformed the potato business.

The Southern Pacific Company has just re-issued a carefully revised edition of "California for the Settler" for free distribution. It is an attractive book, well worth sending as a new year's greeting to your Eastern friends with your best wishes that it may induce them to make their homes in California.

Make Sure of a Heavy Stand

This season when hay will be worth big money how can you be sure of the alfalfa seed you use? The answer is easy:

To get a heavy stand that yields extra-tonnage cuttings, plant Morse's Seed.

If your soil and moisture conditions are favorable, you can depend on this seed for a satisfying, big-profit stand.

Morse Alfalfa Seeds are of every standard variety. Each is government approved for purity. Each has passed a severe germination test at our seed testing station.

Morse's Extra Recleaned

is a big tonnage variety—not a freak—not an experiment. Long-lived, steady-yeilding, quality-proved. Produces heavily in all climates and altitudes. "Leaves" abundantly—hence is rich in food value.

Now then—

The supply of Morse's Extra Recleaned Alfalfa and other varieties is not overly large this year. Prices will advance. Get your order in now. Write for prices today.

C. C. MORSE & CO.

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MORSE'S Alfalfa

Save Your Vegetable Crops

From Root Maggots and Worms

Many thousands of dollars' worth of cabbages, onions, turnips, cauliflower, beets, radishes and other vegetables are eaten up and destroyed by maggots and worms in this State every year. Market gardeners and home gardeners alike suffer. Many remedies have been tried—but none have been completely successful—until the recent introduction of

"CARCO"

The Wonderful New Vegetable Spray

It not only kills maggots, grubs and caterpillars by contact, but prevents the deposits of maggot eggs as well. The results accomplished with CARCO are nothing short of marvelous.

Absolutely Guaranteed

CARCO will absolutely rid your vegetables of all worms, maggots, etc., exactly as claimed or we will refund every cent paid for the spray. You take no chances when you spray with CARCO. It does the work or it costs you nothing.

PRICES—Pint, 50c; Quart, 80c; ¼ Gal., $1.25; Gal., $2. Send postage extra for pints and quarts and ¼ gals.; larger quantities sent express collect. One gallon of CARCO makes 126 gallons of the spray ready to apply.

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Old Style Grafting

Ruins Trees
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Grafts often broken by wind
Limbs split and decay

Our Method of Side Grafting

Remedies all this. Saves wax. Saves labor. Grafts grow better and mature sooner than by any other method. It will work over all your fruit trees with practically perfect results.

Full Information sent free.

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Hamilton Made SPRAYING HOSE

"The Standard of America" will spray your trees for several years at one cost. A trial will convince you.
½-in PERFECT Spray Hose in 50-foot lengths coupled; 6-ply.
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Either kind stands 600-pound test. For any power or hand sprayer.

$15.00 FOR 100 FEET
Cash with order.
Express prepaid. Immediate shipment.
HAMILTON RUBBER MFG. COMPANY.
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THE SELF-OILING WINDMILL

has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load. We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

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SAVE 1-2 ON YOUR HAULING

Carrier With Load

No need to make an extra trip for that crate of chickens, cans of milk, trunks or freight. Take them along on an

Everea dy Adjustable Carrier
(for Ford cars only.)

Not a trailer. Becomes a part of your car. No upkeep expense. Always with you. Slides out of way instantly when not in use. Reinforces the car. Reasonable in price. Hundreds of farmers now use and recommend them.
A BIG MONEY AND TIME SAVER FOR FARMERS.
Write today for free catalogue. Some good territory still open for live agents. Write

THE Stoll Mfg. Co.
3254 Walnut St., Denver, Colo.

Carrier Without Load Slides In

Setting Trees Properly

ON account of the physical structure of my subsoil, a cementy, gravelly, hardpan, which greatly or totally retards plant root growth, as it comes quite close to the surface in places, I have found by experiment that I can get a much better tree growth by setting them in dynamited holes than I can in those prepared with a spade, for the reason that an exploded hole has the underlying stratum of hardpan shattered, whereby the tree roots can penetrate and permeate this otherwise inaccessible and useless soil, which contains quite an abundance of the mineral plant food elements.

I have also found that a tree set in a dynamited hole comes into bearing somewhat quicker, since it makes a more rapid and rampant growth.

Many farmers seem under the impression that farm explosives are too dangerous to use, but I differ from them there, as I do not consider nor have I found it any more dangerous if handled properly than a team of mules. Of course, it should be handled carefully, but it is not the dynamite, but the caps, that require the most careful handling.

In setting some young apple trees a number of years ago I plowed the ground deeply, smoothed with a harrow and checked off into spaces 25 feet apart each way. Where the places came for a tree I spaded out a good-sized hole in the top dirt and then drilled a small hole through the layer of hardpan, loaded with one half cartridge of 20 per cent dynamite and fired.

After this I thoroughly tamped the hole, to fill up any pockets that might have been formed by the explosion, redug the hole, trimmed the tree and roots where necessary and, spreading the roots out as much as possible, set them quite deeply, covering and tamping in well with earth, mixed with some commercial fertilizer to give the trees a quick start and to furnish them with a sufficient amount of food to keep them growing nicely until they had extended their root system over a large enough territory to be able to pick up sufficient nourishment.

By watching my orchard I find that the trees set by the aid of explosives, other things being the same, are as large at about three and a half to four years as my spade-set trees are at five.

I have used farm explosive for some eight or ten years and I like it better and better the more I use it, since the more I use it the greater has been my profits therefrom.—C. T.

All 1918 Almonds Sold

THE announcement of the Almond Growers' Exchange that the limit of orders for the 1918 crop had been booked at prices to be named by the exchange next fall indicates that the demand for almonds is well in advance of the supply and also that the service rendered by the exchange to both growers and consumers is most satisfactory. This condition of the almond industry speaks well for co-operative selling.

A California beekeeper has found that one way to kill the drones is to open a frame and shave off the caps from the drone cells with a knife. Then the worker bees will draw out the immature drones. These cells are distinguishable from the others because they protrude higher than the rest of the cells.

Three daughters of George Altenender, a farmer living near Orofino, Ore., gave their father valuable assistance in harvesting his crops when he was unable to obtain men to work. The girls donned overalls and labored in the fields.

YUCAIPA GATEWAY COLONY

The Cream of the Great

YUCAIPA VALLEY

The Gem of all Southern California's Beautiful Valleys, and the Largest Apple Growing District in the State.

Nearly 5000 Acres of Apple Orchards planted in Seven Years. Located 70 miles east of Los Angeles, adjoining the City of Redlands.

1400 Acres of the Choicest Apple and General Deciduous Fruit and Farming Land in the Valley, WITH GRAVITY WATER, now selling in subdivisions of 2½ to 20 Acres, on easy terms. The

GATEWAY COLONY

Occupies the northerly portion of the Yucaipa Valley and forms its entrance via Mentone, Crafton and Mill Creek. It extends across the valley's entrance from the base of the Crafton Hills (which separate it from the City of Redlands), two miles easterly, to the base of the mountains, from which it receives its supply of gravity water.

The Colony has an elevation of from 2700 to 3400 feet, giving it a most delightful winter climate—its early mornings crisp and exhilarating and a perfect summer climate, entirely free from extreme heat.

The **Gateway Colony,** being located at the base of the mountains, never fails of a large rainfall, its annual average for the past 30 years exceeding 25 inches, and hence but slight irrigation is needed for fruit, and none at all for hay, grain and first crop of vegetables.

The **Gateway Colony** controls the entire watershed for two square miles along the mountain range, centering in Triple Falls Canyon, which opens on the upper slopes of the property. Pipe lines convey the water from the canyon to the large storage reservoir, from which it is supplied by **gravity** to the highest point of each colony tract. It is never failing and its quality cannot be excelled.

The soil of **Gateway Colony** is a thoroughly decomposed granite, ten to thirty feet deep, which can be tilled any day in the year, and which, with moderate cultivation, retains the moisture wonderfully. It is not only perfectly adapted for apples, peaches, pears, olives, plums, grapes and berries, but for potatoes, corn, peas, beans and, in fact, all general farm crops.

It is the home of the Red Winter Apple, California's most profitable horticultural product.

The **Gateway Colony** is now open for sale in subdivisions of 2½ to 20 acres, and will be sold to responsible buyers at reasonable prices and upon easy terms of payment. Certified title will be furnished by the Title Insurance and Trust Company of Los Angeles.

Orchards planted and cared for at actual cost for non-residents, affording them an opportunity to acquire a full-bearing orchard without interfering with their present business.

FREE

Illustrated folder with views and description of entire valley, mailed free upon application.

Rebate certificates good for full amount of railroad fare from all points, east or west, to the Gateway Colony, on account of 10-acre purchase, mailed free.

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New formula of U. S. Government Poisoned Barley is effective in dry weather. Kilmol and U. S. Government Poisoned Barley are used and endorsed by the biggest and most successful ranch owners.

Remember, results guaranteed or money refunded.

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6 Sheets for $0.25, Postpaid.
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If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.

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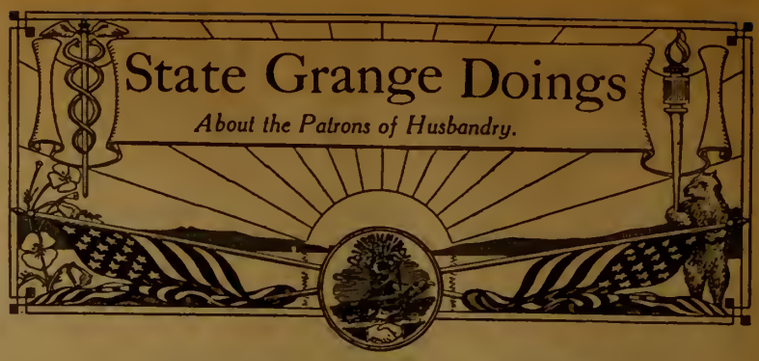

Edited by E. C. Abbott, State Lecturer.

Orchard and Farm is the Official Organ of the California State Grange.—Editor's Note.

THE National Grange at its recent session at St. Louis demanded a "bone dry" nation as a war necessity.

Favored a continuation of road building as a stern military need.

Advocated putting unused water powers at work as a means of saving coal.

Demanded an eight-hour-day basis for fixing prices of farm products.

Vigorously opposed any curtailment of rural mail service.

Unanimously voted to send a pledge of unqualified support to President Wilson in this great world struggle for world liberty.

Grange and Farm Adviser

The Executive Committee of the State Grange met Dean Hunt and several of the faculty of the Agricultural Department of the State University at San Francisco recently to consider the attitude of the Grange toward the Farm Adviser movement.

These farm bureaus are being established all over the country to increase the food supply, and have already done much in that line. They and the Grange have much in common.

The Grange's mission is to make rural life better worth living by fostering all movements for the betterment of educational, moral and social conditions as well as enabling the farmer to raise more and better products and receive a fair price for them.

It would seem as if the two ought to work in harmony, and mutually extend each other's influence. It might be a good way for the Farm Adviser to join the Grange, where he could meet the best element in the community. During the lecturer's hour he would receive many helpful suggestions for his work. His college training needs supplementing by that kind of wisdom that comes from contact with practical farmers. The local Grange could greatly increase his influence by co-operating with him and at the same time find a new field of usefulness among those outside the Grange. It is hoped much good may come from this conference between Dean Hunt and the Grange.

Against the Saloon

A large number of Grange members met with Mountain View Grange last month, the occasion being the joint installation of the five Granges of the county. G. R. Harrison and wife were the installing officers, coming from Sebastopol, Sonoma County. Two important resolutions were offered by the committee on labor and adopted by the Grange, as follows:

"Because of the common knowledge that the open saloon in city and country is responsible for great loss of time and efficiency of farm help, and because the United States Government is asking for greater production of food products, the Grange requests the State authorities to close all saloons as a war measure.

"Realizing the need of more farm help in order to produce greater crops of foodstuffs for both home and export use, in the face of a steadily decreasing number of farm laborers, because of the great number of farmers that have gone to the front or entered other lines of industry, we favor the admission of Chinese laborers for farm work only for a period of three years, or during the war, who shall be returned to their native country at the end of that time."

Watching Legislation

To protect agricultural interests in Congress the National Grange has appointed a very strong legislative committee to keep a close watch over all legislation affecting farming interests. A similar committee from California Granges will probably be on hand at the next meeting of the State Legislature to work for the interests of the farmer. Isn't it about time the farmer woke up?

Get in Touch With Your County Agent

By Carl Vrooman,
Assistant Secretary of Agriculture.

I WAS told the other day by a banker from central New York that in two short years one of our county agents, located in his county, had done more for the farmers of that county than the entire Department of Agriculture and the State agricultural colleges had done for them during the 50 years preceding. This same wonder is being worked today in over 1200 counties in this country.

Another instance of the very practical aid given by the county agent is the experience of an old Maine farmer who had lived to be 70 years old without ever having made more than a bare living on his hundred-acre farm. The land had been cropped to death. His sons, discouraged by the prospect, left home and went to work in the city. In due time one of these sons, having saved $2000, came home and undertook to make the old place pay. He asked the county agent what he should do.

The farm was worth on the market about $20 an acre. When the county agent told him that the first move was to spend $10 an acre for fertilizer it took his breath away, but he followed the county agent's advice on 17½ acres. From this small field that fall he sold $1600 worth of potatoes. Deducting all expense, including that hitherto unheard-of fertilizer bill, the profit from his potatoes was $2600. When he handed his father $1300 as his half of the returns the old man said that he had never before seen that much money made from farming.

What that boy did any intelligent farmer in that section might do in a favorable year if he had as much cash to buy fertilizer with as that boy had.

Lights with a Match!

NO torch needed with this new lamp. Just use a match as with the old time oil lamp. Gives a brilliant, steady, white light of 300 candle power, brighter than the brightest electric light, safer than the safest oil lamp, cheaper than the cheapest candles.

Coleman Quick-Lite

makes and burns its own gas from common gasoline. No wicks to trim—no globes to wash. No dirt, grease, smoke or soot. Absolutely safe, no danger of fire or explosion. Fuel can't spill—no danger if tipped over.

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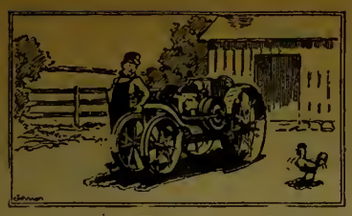


Spring Tractor Show

PREPARATIONS are under way for the greatest tractor and farm implement demonstration the Sacramento Valley has seen, to be held near Davis the latter part of April. This demonstration is to be held under the auspices of the California Tractor and Implement Association.

The demonstration will be held on Tuesday, Wednesday, Thursday and Friday preceding the annual University Farm School picnic at Davis. This picnic is one of the greatest social affairs of farm life in California. Last year it attracted more than 16,000 people.

There will be a public demonstration daily for about two hours each afternoon, according to the announcement of Secretary-Treasurer J. M. Walker of Stockton. The rest of the time each day will be used by each exhibitor for private demonstration. Each exhibitor will be required to furnish a tent for his own headquarters and to share in the general expense of plotting the ground, providing watchmen, gate men and public conveniences.

Secretary Walker draws attention to the fact that no public demonstration of wide scope has been held in this part of the State since May, 1914, and the time is ripe for an elaborate affair. He says in his letter to tractor men that it is the patriotic duty of all tractor and implement manufacturers and dealers to hold a well-advertised, well-conducted educational demonstration next spring.

Walker is sending out a questionnaire to all tractor and implement manufacturers and dealers asking them to apply immediately for the amount of space they desire for this demonstration.

It is expected that next season the demand for farm tractors and implements will be the greatest in the history of the country due to a shortage in labor and in the fact that the nation is calling for the production of more food than ever before in history.

New Wood Cutter

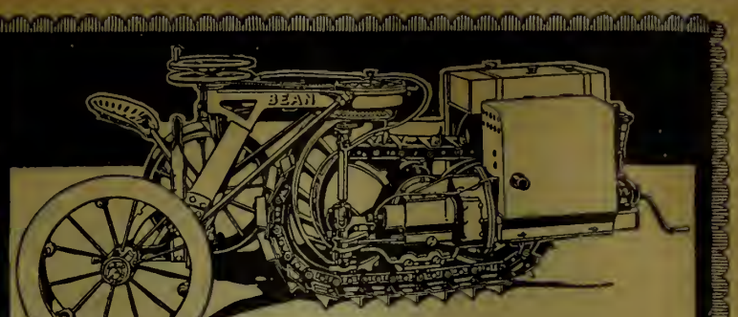
THE big coal shortage is making a strong demand for wood as a substitute for coal, so if you have timber on your land which can be turned into fuel, you will be doing a patriotic act in cutting enough for your own use and putting what you don't need on the market to be sold at good prices.

The coal situation in some sections is extremely serious. Coal is hard to get, and unless something is done to relieve the situation, thousands of homes will be without fuel this winter.

Many farmers have wood lots filled with "weed" trees, or scrub timber which instead of ever growing into lumber material, interferes with the growth of the good trees. Now is the time to turn this scrub timber into cash. Dead or fallen trees, old logs, stumps, etc., all can be utilized in making excellent fuel.

Cutting down trees and sawing up the logs is not as hard a job as it seems. The hard work has been taken out of it by the folding sawing machine. The machine is constructed so that one man can saw wood in any position on any ground, and handle logs from four inches to five feet through.

With a machine like this, which takes all the old time back-aching work out of cutting timber, one man should be able to make good income.



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SEND the coupon below for the wonderful story of the little Bean TrackPULL Tractor—the tractor that works in orchards and vineyards as no other tractor can. Note some of the features listed below. Then get the book at once. Compare this tractor with the kind you know. See how this one fits your needs.

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15. Little power required to pull tractor—power all goes to pull implements.

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Mail the coupon now — it doesn't obligate you. It simply brings you all the facts. When you get them decide if you want the patented Bean or an ordinary kind. For more than 30 years we have built and sold reliable orchard and farm machines. You can rely on the fact that the Bean Tractor *at work* makes good our every claim.

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No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month. Address Orchard and Farm, Examiner Building, Los Angeles, California.

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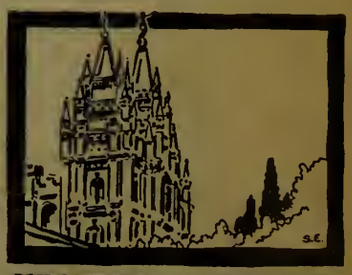

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SALT LAKE ROUTE

EDITORIAL DEPARTMENT OF ORCHARD AND FARM

Bailey Millard, Editor

Farm Income Tax

FARMERS are as much interested as anybody in the new income tax. Some of them are writing to Orchard and Farm and wanting to know what to do about it. There is no need of worrying. You won't have to figure out your own income tax all by yourself. The government is going to send out men to help you. It will be up to you to hunt up these men, who will be sent into every county seat town, and some other towns besides, to meet the people. Postmasters, bankers and newspapers will be able to tell you when the government's income tax man will be around, and where to find him. He will answer your questions, swear you to the return, take your money, and remove the wrinkles from your brow. Returns of income for 1917 must be made between January 1 and March 1, 1918.

This year every married person living with wife or husband and having a net income of $2000, and every unmarried person not the head of the family and having a net income of $1000 for the year 1917, must make return of income on the form prescribed. There will be hundreds in every community seeking light on the law, and they will get help in executing their returns.

It may be stated as a matter of general information, that net income is the remainder after substracting expenses from gross income. Personal, family, or living expense is not expense in the meaning of the law, the exemption being allowed to cover such expense.

The new exemption of $1000 and $2000 will add tens of thousands to the number of income taxpayers in this district, inasmuch as practically every farmer, merchant, tradesman, professional man and salary worker and a great many wage workers will be required to make return and pay tax.

The law makes it the duty of the taxpayer to seek out the collector. Many people assume that if an income tax form is not sent, or a government officer does not call, they are relieved from making report. This is decidedly in error. The taxpayer has to go to the government and if he doesn't go within the time prescribed, he is a violator of the law, and the government will exact penalties.

It's Up to the Farmer

IN THIS great war the American farmer in large degree will determine the trend of human history for all time to come, because the enormous ultimate consequences of this conflict rest primarily upon the farmers' production of food and feed to sustain the fighting forces. They might fail even with an adequate food supply; without it they are certain to fail.

But in his field, far from the fury of battle, far from either the adventures or the horrors of the firing-line, the American farmer will say whether autocracy or democracy shall rule the world during the seasons that are to come.

In a sense the war will be won or lost in the fields, gardens, orchards, pastures and hog lots of the American farmer.

The hope of the American citizen, not a farmer, also hinges upon adequate agricultural production. Our aeroplanes are useless, our guns are spiked and our rifles jammed, our shells are but as harmless baubles, if the farmer fails. This must be understood in all its grim force by every man, woman and child in America by farmers and by those who are not farmers.

With food we can win the war.

Lack of food will lose the war.

Whether or not we produce the food depends upon whether or not each and every individual farmer does his level best on his farm.

Our Fruit Prospects

IT IS pretty generally conceded that, despite the short allowance of rain during the early winter, the prospects for California fruit are bright. Judging by the acreage now in bearing, we shall raise over 5000 carloads of fruit more than in 1917. One thing that gives great encouragement to the fruit grower is the fact that no car shortage is expected this year, as the Government has given positive assurance to the Fruit Growers' Association that all shipments will be handled promptly.

Furthermore, the outlook for prunes and other dried fruits is most promising, and the nut men are expecting good returns from their crops.

Even if, as a result of unfavorable weather in the first part of the year, we should have light crops, what is grown will certainly be marketed to good advantage. There is another reason for less than a normal yield that is pointed out by Mr. G. H. Hecke, State Commissioner of Horticulture, and his view is shared by not a few of the growers. Mr. Hecke says:

"Our deciduous fruit trees have borne big crops the past season under generally unfavorable conditions—such as the hot wave in June, absence of sufficient moisture, and neglect of insect control work—the quality of the fruit having been lowered thereby. These factors will no doubt be instrumental in causing a decrease in the production of deciduous fruits to be expected in 1918."

Whatever happens, however—big crops or small—the prices are going to be top-notchers.

So prepare to get busy with your spraying machines, your cultivators and your irrigation outfits. Make the most of the situation which, come rain, come frost or come anything, is a pretty safe bet in this year of grace, 1918.

Alfalfa and the Moon

SOME of our readers are still skeptical as to the recent utterances of Orchard and Farm on the question of how the moon affects crops. Our contention has been right along that there was no such effect.

A correspondent of Hoard's Dairyman, one of the best farm publications in the country, wrote to that paper recently:

"Alfalfa has been raised in this section for the past thirty years and I have grown it on my own farm for the past eleven years. No two years are just alike, and we have something new to learn every year. Possibly my own experience will be of some assistance to your inquirer who found that the field from his second day's cutting was badly injured, whereas that part cut the day before was in good condition. I have experienced the same trouble and upon investigation I am convinced that it is due to cutting in the wrong time of the moon. Don't be skeptical about this because it is an absolute fact. We figure on cutting when the plants are in season with the moon and now have no trouble."

To which the editor made this reply:

"We incline to the opinion that some factor or factors other than the 'phase of the moon' were responsible for the effects noted by our subscriber. It is somewhat easier to ascribe a given result to a supernatural cause than to locate the defect in practice or the exact, scientific cause."

Corn the Best Food

THE amount of human food from an acre of staple products lately has been set forth in a pamphlet issued by the United States Department of Agriculture. The yield in bushels is given and the calories per acre.

Many old theories are upset by some of the expert findings. In a list of staples, buckwheat is last in the number of calories produced per acre, while corn is first. The average consumption for a normal man is 3000 calories per day. If he raises 35 bushels of corn on his acre, he has produced 1,324,240 calories, or approximately food supply for three persons for a year.

However, if he raises the 24 bushels of buckwheat credited to an acre, he raises only 751,800 calories, or only enough calories to last him 250 days of the year.

Following is the table given:

Crop	Acre yield bushels	Calories per acre
Corn	35	3,124,240
Sweet potatoes	110	2,851,200
Irish potatoes	100	1,908,000
Rye	20	1,807,200
Wheat	20	1,807,200
Rice, unpolished	40	1,581,216
Soy beans	16	1,534,000
Peanuts	34	1,265,018
Oats	35	1,254,400
Beans	14	1,123,080
Cow peas	10	852,600
Buckwheat	24	751,800

By this it would appear that corn is the food of highest value, but of course the experts do not mean the corn meal of commerce which contains very little in the way of vitamins. These vitamins are contained in the germ part of the kernel—the only part that rats and mice will eat, but which human beings, for some strange reason, discard. We have said "strange reason," but the excuse given by the millers is that whole meal corn does not keep well. Then why not Hooverize it—have the milling and sale of it so regulated that we could get the benefit of the best part of the kernel instead of merely the poorest portion?

No More Guesswork

THINGS are settling down.

The farmer is finding himself. He begins to understand the situation and what is expected of him from the administration.

Perhaps he was right in having his doubts about how he was going to come out if he went in for heavy production, which, in his view, generally means over-production.

Now that he has positive assurances from Washington as to what he may reasonably expect by way of prices and the marketing of his crops he can see his way clear to go the limit.

The grain men are assured of their position.

The fruit raisers are in some doubt, but that is nothing unusual, and we expect to see light ahead for them before long.

As to the sugar beet industry, that is still a little muddled, but there are signs of improvement.

Bean growers know they can take the bull by the horns and turn loose a big acreage.

Some of the vegetable growers are a little leery of the situation, the cabbage and onion men, for example, having had rather rough sledding of late; but they are commencing to see daylight.

Yes, things are looking better for the farmer.

Problem of Production

By Franklin K. Lane,
Secretary of the Interior

A DEMOCRACY making war is never an agreeable sight, for it is not in its normal line of life. And those who sneer or jeer because it does not play the game as well as might be, pay an unconscious compliment to the merits of free institutions.

It takes time to accustom men to the short, hard words of command, and to the surrender of personal judgment. It is not easy, either, for a nation to turn its back upon the conception of a world where justice works out its ends by quiet processes, and in its stand come to the stern belief that the ultimate court is a battlefield. So if there is wrenching and side-slipping and confusion there should be no surprise.

The surprise to me has been with what comparative ease the transition has been made, and how much unconscious preparation for the new work had been already made.

It Is a Hard Test

Now, that our problem is to produce more than ever before, it is clearly to be seen that the physical resources of the United States are today almost completely at the command of the world's needs.

If, indeed, for the past forty years this nation had been planning to make war upon its neighbors, and so seize the continent for itself, what more would have been done to make our resources available for such an adventure?

This is, perhaps, the hardest test to which the problem of our internal development could be put. Yet the answer must be that very little more could have been done or would have been done by a people necessarily doing so much.

Modern industrialism may be epitomized as power plus iron. We lack neither. It is the unprecedented and the not-to-be-anticipated burden of providing not alone for ourselves, but for nearly all of western Europe and part of Asia and Russia which makes the great demand.

To Relieve the Starving

For our own needs we have coal and iron and nearly all the rich line of less common minerals in abundance. It sounds most boastful to say that the most paternal of governments, intent upon a dynastic purpose, would hardly have found ways to supply itself more liberally with the fundamentals of the great war industries than has been effected by the quiet searching and working of this free people. And what is true as to minerals is equally true as to the products of the soil.

The large liberty of life and the casting of responsibility upon the individual, allowing personal ambition to be a substitute for direct command, and curiosity to be the spur to knowledge—these have put under crop the greater part of the continent and made this the relief depot of starving nations.

Beans as War Food

IF beans win the war California will be entitled to the victory, because five of the south coast counties have produced this year enough beans to feed an army of 2,000,000 men all winter. As a matter of fact, beans will play an important part in the defeat of Germany, because the armies of the world depend upon concentrates for their fighting energy, and the lowly bean ranks as one of the foremost concentrates. —*P. B. Emerson.*

New Burbank Catalogues

Earliest Tomato in the World

The New *White* Flax

A Delicious New Breakfast Food Plant

A New Brazilian Perfume Plant

The Giant Balloon Berry

The Sunberry

New and Better Vegetables, Fruits and Flowers

LUTHER BURBANK

Burbank's Experiment Farms,
Santa Rosa, California.

TODAY *versus* YESTERDAY

Little more than a decade ago, giant steam tractors represented the highest achievement in mechanical farm power—and Holt steamers then held a place in the lead. Today, the old steamers have been almost entirely displaced by gas-tractors, but Holt still holds the lead. Thirty-five years' manufacturing experience, combined with correct design and choice of materials, have made the "Caterpillar" Tractor first in strength, power and endurance. This superiority results in longer tractor service, lower operating and upkeep costs, larger profits.

The "Caterpillar" Tractor's achievements on European battlefields and the satisfaction it has given thousands of farmers, freighters and contractors are your safest guide to the right choice.

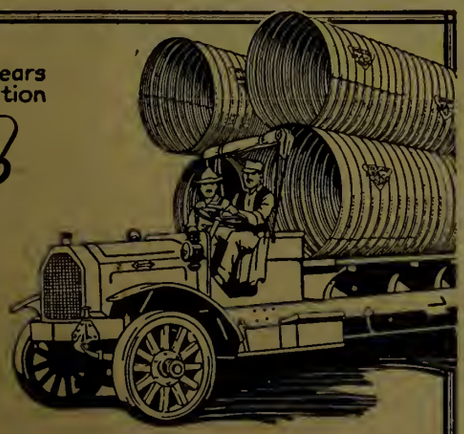
Send today for complete "Caterpillar" Tractor information

CATERPILLAR

Reg. U.S. Pat. Off.

This Mark Appears on every section

AMERICAN ARMCO INGOT IRON



Rushing "ARMCO" Culverts to the Cantonment at Camp McClellan

Installed quicker – Last longer

PROBABLY some of the fastest road making ever done in this country was during the recent construction of the Nation's new training camps.

This speed was partly due to the fact that many

"ARMCO" IRON CORRUGATED CULVERTS

could be shipped on a day's notice, and could be installed in a few hours' time by inexperienced labor.

Long years after the war is over these culverts will be doing duty. Or if the camps are abolished the culverts can be dug up and used again, because they are made of "Armco" Iron. They resist rust for many, many years because made of an iron practically free from impurities.

For full information as to rust-resisting "Armco" Iron Culverts, Flumes, Sheets, Roofing, and Formed Products, write to

ARMCO IRON CULVERT MFRS. ASSOCIATION
CINCINNATI, OHIO

Stylish—Roomy—Easy Riding

With Fine Driving Qualities

You will like the look of the new Elcar models. The designs are original, different and strikingly graceful. The high-class paint work insures **lasting** beauty. Comfort and roominess are given special attention. Drive all day and you won't be cramped. Easy riding whether fully or partially loaded. Plenty of speed—abundant power for the hard pulls. The steering is the easiest—the control the simplest—the motor responsive and flexible.

ELCAR

Reliable quality is a certainty in the Elcar. We learned to put in quality years ago, when building cars selling up to and above $3,000. We give exceptional value in these **quality cars at popular prices** — each model large and good enough to fulfill any motor car requirement.

Don't think of choosing until you have seen the Elcar. Ask for nearest dealer's name, if you don't know him.

Brief Mention of Elcar Points

Four cylinder models, 37½ horsepower at 2,100 r. p. m. Six-cylinder models, 40 horsepower at 2,100 r. p. m. Two unit electrical system Long wheel base, 116 inches; road clearance 10½ inches Full floating rear axle with spiral bevel driving gears. Timken Roller Bearings front and rear. Double universal drive; tubular propeller shaft. A wonderfully easy riding semi-elliptic spring suspension. Roomy and comfortable bodies of beautiful design and durable finish; new "Cathedral Pipe" upholstering. Equipment complete, even to motometer.

Catalog on Request

Write for catalog illustrating and describing the **Six New Elcar Models** — gladly mailed to all interested.

Elkhart Carriage & Motor Car Company
C-804 Beardsley Avenue Elkhart, Ind.

Nut Bearing Trees

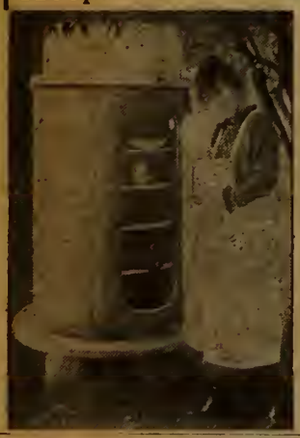
Write for Roeding's New Illustrated Catalog and Planter's Guide Revised and Combined. It is a Valuable Book.

SEVERAL pages of our new Catalog are devoted to Nut-bearing Trees, their habits, pruning, planting, best varieties to grow, etc.

More Walnuts, Almonds, Pecans and Chestnut Trees should be planted in this State to supply an ever-increasing demand.

Fancher Creek Nurseries
705 Holland Building Fresno, Cal.

No Ice Needed—This Iceless Refrigerator Keeps Food Better Than Old-Fashioned Refrigerators



Most perfect cooling system. Foods keep exceedingly fresh in hottest weather; keeps cool by evaporation; made entirely of cement, reinforced; made in sections; easy to set up. Shipped anywhere. Our steam tempering process makes cement almost as hard as iron; does not warp or twist; sanitary in every way; not affected by acids nor other strong solutions; does not rust; is antproof; revolving cement shelves; inside enameled throughout; perfect ventilation; no repairs; pays for itself in two seasons; only refrigerator of kind made; two sizes; women praise it; demand doubled every year; impossible to sell through dealers at present prices; sold direct.

Mrs. H. H. Welsh of Del Rey, Cal., writes: "I am very glad to be able to say we are thoroughly pleased with your Iceless Cement Refrigerator. It is all you represent, and more, too. I am keeping 23 pans of milk in it (June 13), and find it very satisfactory in every respect. You can put me down as recommending it highly."

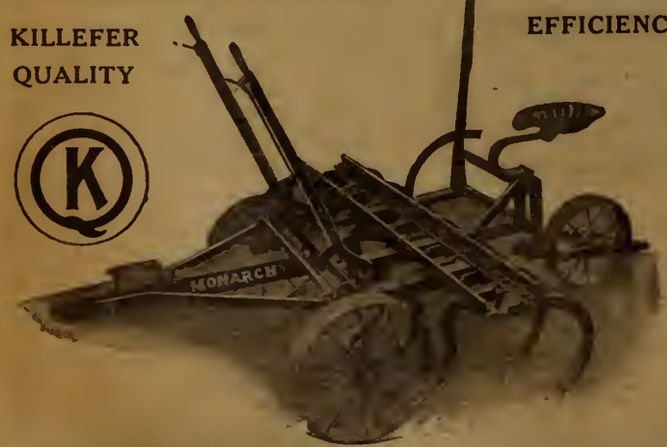
FREE The "Iceless Era," devoted to interests of Iceless Cement Refrigerators—Free.

Pittman-Hampton Co., Manufacturers, Selma, Cal.

Monarch Cultivator

KILLEFER QUALITY

KILLEFER EFFICIENCY



The Killefer Monarch Cultivator has more varied uses on the ranch than any other tool we manufacture. As a Beet and Bean Chisel it has no equal. As an Orchard Cultivator, where deep cultivation is desired, it gives perfect satisfaction.

As an Alfalfa Cultivator, when fitted with our Special Alfalfa Tooth, it does excellent work, loosening the ground to a depth of from six to eight inches without injuring the stand. This deep cultivation enables the water to percolate to a greater depth than any other method except subsoiling.

Corvallis, Oregon, April 3, 1916.

The Killefer Mfg. Co.
Los Angeles, Cal.

Gentlemen: The Monarch Cultivator did us a good job in our alfalfa field taking out a tough grass sod which nearly had the alfalfa whipped out. Am pleased with the performance. We are handling it with a 30 H. P. motor.

Yours, J. B. CORRIE.

THE KILLEFER MANUFACTURING CO.
2209-21 Santa Fe Ave., Los Angeles, Cal.

Tractor Problems

Is your tractor giving you any trouble? If so, write to Tractor Editor, Orchard and Farm, Examiner Building, Los Angeles, and a reply will be mailed to you from our expert. If you have no objection both questions and answers will be printed in this department.—The Editor.

Loss of Power

MY tractor worked all right the first few months, but seems to have lost its power. What about it?—E. L. O'B., Portland, Ore.

Loss of power in a tractor, as in an automobile, may be due to poor compression, poor lubrication, a late or weak spark or to the fuel valve not being properly adjusted. If after you have ascertained that the loss is due to none of these causes and you are still unable to remedy it, you had better hire an expert to go over your machine for you. Perhaps the valves need regrinding. You will learn how this is done by consulting your instruction book.

Lubrication Important

My tractor instruction book calls for a big lot of oiling. A man here who has a tractor says that I put in altogether too much time in oiling my machine, and he laughs at me. Would it pay me to let some of the oilers and grease-cups go when I am in a hurry with my plowing, especially in the morning?—P. McC., Ontario, Cal.

Most assuredly it would not pay you to slight your lubrication in any way. You might save a few minutes' time, but your informant is all wrong when he says you exhaust too much time in oiling up your tractor. Nine times out of ten it is the other way about. Half of the trouble of a tractor operator is the result of improper or insufficient lubrication. It is amazing how this important feature of running a tractor is neglected.

Cleaning Piston Rings

How will I go to work to clean the piston rings of my tractor? It is a Titan, and I think by the sound that the piston rings are dirty.—T. R. C., Modesto, Cal.

You cannot tell altogether by the sound whether your piston rings are dirty or not. Better have an expert examine the rings. But if you are a fairly good mechanic you should have no trouble in ascertaining whether the rings need cleaning. To remove the piston take off crank case cover. Remove the cotters and nuts from connecting rod bolts, remove bearing cap. Then carefully remove the liners from the bolts. Do not lose and do not mix them up. When reassembling the liners must be replaced on the bolt from which they came. Take off cylinder head and mixer after disconnecting the governer rod. Remove the piston by pushing on the connecting rod. If the rings are found to be fast in the grooves clean them by washing in kerosene. Work them up and down in the grooves until free. Now remove the first ring with the aid of three thin metal strips as illustrated. Insert these strips under the ring at the joint, leaving two close to the joint. Work the other one to a position opposite the joint. The ring is now out of the groove and can easily be removed. Remove the others in like manner. Clean the rings and ring grooves in the piston thoroughly, using a knife to scrape them if necessary. When replacing the rings, put the center ones in first, using the metal strips as before so as to slide the ring over the groove. After the rings are in position wash piston in gasoline to remove all dirt and grit. Then oil the piston and rings thoroughly and place the piston in the cylinder. It is easier to do this with the piston upside down, as joints in the rings and the ring pins can be easier watched. Be sure that the rings are down in their grooves, and not on top of the piston ring pins, then push piston into cylinder.

If piston is put in upside down place a bar between the connecting rod bolts and turn piston over to its proper position. Now oil the crank pin, connect up, be sure that all liners are replaced, draw nuts tight, replace cotter pins and spread them at the ends. Replace cylinder head and mixer. See that engine turns over freely but that bearings are not too loose. Replace top cover.

As to Overloading

I have a neighbor who boasts that his tractor is doing more work than mine, though the one I own is of the same horsepower. I have an idea that he subjects his machine to a great strain, but as he seems to get by with it, I can hardly see why I should have to keep within the manufacturer's limitations. What do you think about it?—H. C., Porterville, Cal.

What we think about it is pretty well expressed in a paragraph in Farmers' Bulletin 719, issued by the United States Government, which says:

"It does not pay to overload a tractor any more than it does to overload a horse. Three plows behind a two-plow tractor will cover only a little more ground, as a rule, than will two plows, because the tractor usually will travel a little slower, partly because the motor is overloaded and does not maintain its proper speed, and partly because the drive wheels will slip more with a load heavier than the machine was designed to pull. As a result, delays on account of small holes or slight grades will be more common, as will also mechanical difficulties."

Big Tractor Show

THE truck and tractor exhibit which is to be held in conjunction with the Pacific Automobile Show in San Francisco February 16 to 24 is already attracting coast-wide attention.

Practically every make of truck and tractor sold on the coast will be represented and the big show will offer the farmers and merchants of California their first opportunity to judge of the various merits of the different makes of commercial cars.

In this time when the Government is urging a speeding up of business and the commercial car assumes an even greater importance in business and industry than ever before, there is an increasing demand on the part of the business men to use some type of truck in their own business.

General Apathy and Private Interest are two enemies of our national welfare. Each is as dangerous as a Kaiser's agent and should be excluded from every American home and industry.

GOLD! FOR YOUR SPARE TIME

30% CASH COMMISSION

It's Easy to Win and Make a Good Salary While You Work

We Pay You Liberally in Cash for the Work You Do, and the Best Workers Win the Cash Prizes. Write Us Today. **It Costs Nothing to Enter**

Read These Letters from Winners in Our Other Contests

Orchard and Farm:
Dear Sirs—I wish to advise you that I am in receipt of your letter of Dec. 9th with $200.00 cheque and "Diamond Contest" winning list inclosed.
I earnestly desire to assure you that I am doubly thankful and thrice pleased to know that I won second honor, which was really higher than I expected, considering the actual time I spent on the puzzle.
I extend my heartiest well wishes to Orchard and Farm, to all its readers, and especially to all my fellow contestants, for we have something in common. May you all experience a very happy and exceedingly prosperous New Year!
Very sincerely,
HOWARD HENRY STOKES,
Santa Ana, Cal.

Orchard and Farm:
I am in receipt of your check for Four Hundred Dollars, which you awarded me for first prize in the Puzzle Contest.
I want to say I thank you for the courteous and fair manner in which this contest was conducted, which is in every way in keeping with the high-class of farm paper you publish.
The puzzle in itself was a most interesting and instructive one, and I am sure everyone who tried it will feel amply repaid by the amusement they got out of it.
Thanking you again and wishing you continued success, I remain,
(Signed) H. V. McCLEAN,
Salem, Ore.

Orchard and Farm:
I received your check for $225.00, as second prize in your puzzle contest just closed, and thank you very much for same. This was my first experience in a contest of this kind, and I assure you I worked very hard most of my spare time on it and am very pleased that my efforts have been so successful.
I feel that the contest was conducted along very fair and liberal lines and, of course, am very well satisfied with the prize I won. I assure you the money will be used to very good advantage.
Wishing your paper continued success, I am,
ESTHER ANDERSON,
San Francisco, Cal.

Orchard and Farm:
Your letter enclosing check for $125, third prize in the Puzzle Contest, received.
I desire to thank you for this very generous prize, the courteous treatment shown me and for the fair manner in which the contest was conducted. I shall always remain a friend of Orchard and Farm.
(Signed) GEO. O. SAVAGE,
Newport, Ore.

Orchard and Farm:
Dear Sirs—I am in receipt of your check for four hundred dollars, as first prize in your diamond puzzle contest.
I desire to thank you for the prompt manner in which the award was made.
Thanking you for the check and wishing your publication continued success and prosperity, I am Very truly yours,
MARGARET KOTTER,
Berkeley, Cal.

Orchard and Farm:
Gentlemen: Your check for $70.00, as fourth prize in puzzle contest, received. Of course, I would have welcomed the first prize more; however, considering the large number entered in the contest, I feel pleased to know I succeeded in winning one of the large cash prizes.
Thanking you for the prize awarded me, and wishing Orchard and Farm continued success, I am,
Yours very truly,
(Signed) FLORA FAYLOR,
San Francisco, Cal.

Do You Need $400 in Gold?

You can have it and without its costing you a single cent of your money if you will. It will pay you to find out all about our easy plan whereby many others have won valuable prizes easily, just by working during spare time. Send in your name today for the contest is just starting. This places you under no obligation to us whatever.

You have an opportunity here that you can make worth a good many dollars to you if you will only take advantage of it. Some one is going to win the $400 in gold mighty easily and make money besides. Will it be you? It might just as well be you as any one, and no harm will be done in trying. We are ready to turn over to you in cash prizes any commission that we would pay others for doing this work for us.

The $400 in gold should give you a great deal of pleasure. You can't lose in this contest and you have everything to gain. It is a fine opportunity to turn your spare time into cash, and a valuable prize easily earned. You can see what the others say that have won Orchard & Farm prizes. They were glad they sent in their names and found out all about it. We had never heard of any one of them before and none of them had ever taken a subscription before or done anything of the kind. You have just as good an opportunity as any one else to win. It costs nothing to enter this contest, you do not even have to be a subscriber to Orchard & Farm.

The best thing to do is to write at once and we will send you complete details of the contest and our easy plan to secure subscriptions fast and make from $50 to $75 per month during spare time. This costs you nothing and you will be under no obligation to us whatever if after reading about the plans of the contest you decide not to go ahead.

You Won't Know How Easy It Is Until You Start

Don't think for a minute some other fellow has a better chance than you have; he has not. You will never know how easy it is to win or how much money you can make until you enter and get started, which only requires that you send in your name and address at once on the coupon to the right.

Big Prizes and Cash Commissions Besides

The contest will start right away. A certain number of points will be given with subscriptions secured for Orchard & Farm for which you will be paid a liberal commission, and the person who has the highest number of points to his credit at the close of the contest, March 21st, 1918, at 12 p. m. will be awarded the $400 in gold. The second highest will receive $150. The third highest will receive $75. The fourth highest will receive $50. The fifth, sixth and seventh highest will each receive $25. In case of a tie prizes of equal value will be awarded to the contestants so tied.

To All Who Enter at Once

Don't wait. Send in your name and address today on the coupon below and begin making money at once. Full information about the contest, also names and addresses of prize winners in our other contests, and a letter telling you just how to proceed, so act at once.

FILL OUT THIS FREE ENTRY COUPON AND MAIL TODAY

Contest Manager, Orchard & Farm,
Examiner Bldg., Los Angeles, Cal.

Dear Sir: I am interested in your gold contest. Please send free of cost the free outfit and your special easy plan to get subscriptions fast, with full information about the prizes and contest, and tell me how I can win $400 in gold and earn from $50 to $75 per month at the same time.

Name.....

Address..... R. F. D..... Box.....

We Must "Follow-Up"

The story of the Gallipoli withdrawal is a tale of inadequate support. Like Salamanders clinging to the red-hot bars of a fiery furnace, the boys of Australia and New Zealand clung to the slopes of Anzac. Desperately, heroically they clung. No troops under any circumstances ever displayed greater soldierly qualities or upheld more sacredly the best traditions of England's Army. But they had to withdraw because the "follow-up" was not there.

To some of us it has been given to march with the columns of troops that go to France. And to others it is given to wave Godspeed. But he who marches and he who stays is equally a citizen of the world's mightiest republic and equally responsible for its success in this greatest of undertakings.

Then let us at home turn from our flag waving and consider how necessary we are, how useful we must be. Those who go to fight cannot hope to win by naked bravery and we cannot hope to win unless every individual at home does *all* he can. We must have no Gallipoli.

The Bell System is only one of the myriad great and small industries which are co-operating that nothing be left undone to keep a constant, efficient stream of men, guns, ammunition, food, clothing and comforts flowing to the front.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

P For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped I NEW and 2nd Hand P Screw Casings Fittings and Valves Guaranteed For Pressure E

PACIFIC PIPE CO. Main and Howard Sts., San Francisco.

Little Stories of Success

Pears, Poultry and Other Products

SUCCESS in fruit is so often absolutely dependent upon thorough spraying that it is a wonder the orchardist does not pay more attention to that important feature of the care of his trees. Hayward Reed of Yolo county, Cal., who is called the "Pear King" and who has been very successful in the pear industry, is a most persistent sprayer and is making a lot of money because of following that worthy practice. Reed, says the Sacramento Bee, lives across the river from Sacramento and farms 7500 pear trees of Rose Orchard, one of the best organized fruit-producing plants in the State. Reed also has an orchard near Marysville and a young orchard near Vina, Tehama county.

This young fruit farmer has attracted widespread attention because of the new methods he has introduced in orcharding. Some years ago he decided that the old method of spraying trees by hauling the liquid around in a big tank on a wagon was too slow and inefficient. Reed spent some time scheming, with the result that now Rose orchard is equipped with an underground spraying system. The spraying fluid is pumped from a central tank throughout the orchard in underground pipes, and it now is possible to spray the entire orchard in a single day.

Reed also attracted considerable attention of orchardists by his relentless fight against pear blight, which gained a foothold in his orchard a few years ago. He went to extreme lengths to save his trees and some say that his expenses of ridding the orchard of blight amounted to above $1 a tree.

In addition to being an orchardist Reed is something of a globe trotter. He spends his winters learning about new places. He has visited Australia, Japan and Germany since the war began, his trip to Germany having been made just a few months before the war was declared between that country and the United States.

Made Turkeys Pay

O. G. THOMAS, who lives near Ripon in the San Joaquin Valley, knows the value of greens for poultry in these days of high-priced feed. Mr. Thomas has twenty acres of alfalfa and he feeds it to his turkeys, the result being that he raised over 400 of those noble birds last season, which he sold for 35 cents a pound, or about $4.50 each.

In all Mr. Thomas received $1800 for his turks, and his neighbors are naturally looking into the turkey game in which some of them will engage next season.

The poultryman who has plenty of green feed to give to his flock can always manage to squeeze through a season of high-priced feed. In the Weeks Orchard and Farm articles much emphasis was laid upon this important point. There are poultrymen who think that Weeks is just a little dippy on green feed, and of course one does need a goodly ration of grain to go with it, but without the alfalfa where would Thomas have been in his turkey venture?

The brown Leghorn is one of the prettiest varieties of fowls and they always attract the attention and favorable comment of the patrons of poultry shows. They are fast coming back into popular favor. The public has learned that for beauty, egg production and general hardiness they can't be beat.

A Broccoli Venture

SITUATED in the Willamette valley near the city of Portland, Ore., is a ten-acre farm belonging to F. A. Ball. The said city crept out and took under its jurisdiction, therefore making liable for street and sidewalk assessments, the said ten-acre farm.

Mr. Ball found to his great worry the farm would not support him and pay the assessments. After much deliberation he decided to plant broccoli.

He obtained plants, three of which made enough seed to plant an acre of ground. That acre of broccoli produced enough seed to bring him over $500 the first year.

The heads of the plants which resemble cauliflower enough to make the distinction almost impossible, sell well in the spring, the mild season of Oregon permitting the plants to remain out during the winter without injury.

Mr. Ball now contemplates planting at least half of his farm in broccoli, expecting it to bring better results than anything else he can grow on the same amount of ground with the same work and time.

What Co-Operation Did

IN Tulare County is an outstanding example of what can be done with poultry on the farm. The Tulare Co-operative Poultry Association stands as a monument of what can be accomplished with the hen on the farm where the feed is largely grown, if she be given a fair chance.

The members of this association are almost entirely farmers, each with from 20 to 100 or more acres, and poultry is but one of the "crops" each farmer raises.

None of them are primarily poultry raisers, yet they have built up one of the most successful co-operative poultry associations in the State. The secret of their success is that all of them raise poultry with the same care and attention to detail that is given the other stock. They have learned that fowls, like anything else pay in proportion to the intelligent care given them and that it pays good, substantial dividends to employ that kind of care.

In March, 1917, these ranchers delivered to their association from a few to as high as 1495 dozen eggs each, over and above home consumption. In July, 1917, 623 dozen eggs was the largest number delivered by any one rancher.—J. E. Dougherty.

Big Yield for an Acre

THE garden of W. G. Miller and his son Harry, who live in the Double Adobe district of Cochise County, Arizona, contains 19 different kinds of vegetables.

Harry is a member of the Extension Service Garden Club. He has already secured return of $114.20 from 1-22 part of an acre of vegetables and he still has many dollars' worth on his garden plat.

Harry is an excellent gardener. He assists his father, who is also a market gardener who knows how to get the utmost from an acre of land.

Mr. Miller stated that he will secure more than $2500 from his one-acre of vegetables for this year. He believes in his garden and heavily manures it. This acre is a beautiful green spot every day in the year and Mr. Miller and his wife and son, all co-workers, keep busy the year round in attending to, planting and seeding the vegetables.—A. L. Paschall, county agent.

4 H.P.—190 lbs.

The 4 H. P. Cushman Handy Truck is the most useful outfit ever built for farm work. Engine weighs only 190 lbs., and entire outfit only 375 lbs.

Besides doing all farm and household jobs, this 4 H. P. Cushman may be lifted from truck and hung on rear of binder during harvest to save a team. In wet weather it saves the crop.

Light Weight Cushman Engines

Built for farmers who need an engine to do many jobs in many places instead of one job in one place. Throttle Governed, with Schebler Carburetor. Run very quietly and steadily—not with violent explosions and fast and slow speeds like old-style heavy-weights. Engine Book free.

CUSHMAN MOTOR WORKS
880 N. 21st Street Lincoln, Nebraska

8 H.P.—320 lbs.

MALIGNANT GROWTHS
TUMORS, WENS AND ALL BREAST LUMPS TREATED

Strictly a non-operative treatment. NO KNIFE, NO BLOOD AND WITH LITTLE OR NO PAIN. Our method of application positively kills every particle of diseased tissue.

REMEMBER that danger signal is a sore that does not deal or the rapid increase of growth in a lump, wart, mole or scab which may have been present a long time. If these conditions appear in an individual over 40 years of age they are NEARLY ALWAYS OF A MALIGNANT NATURE and should be given immediate attention.

Send for our 64-page (free) book with names and testimonials of cured patients. Many right here in your own vicinity. EXAMINATION FREE.

CHARLES STIRLING, M. D.
"Shirley Treatment."
253 12th St., Oakland, Cal.

Deafness

Perfect hearing is now being restored in every condition of deafness or defective hearing from causes such as Catarrhal Deafness, Relaxed or Sunken Drums, Thickened Drums, Roaring and Hissing Sounds, Perforated, Wholly or Partially Destroyed Drums, Discharge from Ears, etc.

Wilson Common-Sense Ear Drums
"Little Wireless Phones for the Ears" require no medicine but effectively replace what is lacking or defective in the natural ear drums. They are simple devices, which the wearer easily fits into the ears where they are invisible. Soft, safe and comfortable.

Write *today* for our 168 page FREE book on DEAFNESS, giving you full particulars and testimonials.

WILSON EAR DRUM CO., Incorporated
273 Inter-Southern Bldg. LOUISVILLE, KY.

FISH FISH
Salmon in brine, 100 lbs. $11.00. Shipping weight, 175 pounds. Smoked salmon, 20 lbs. $3.25. Dried codfish, 10 lbs. $1.75. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

REDWOOD TANKS

A tank, 5x2, $9; a tank, 7.4x4, 1000 gal., $23; a tank, 8x5, 1500 gal., $31; a tank, 5x4, 500 gal., $18. Tanks in stock up to 10,000 gallons. Thirty-five years in this business in Stockton. Try my improved non-shrinkable tank. References, Farmers' and Merchants' Bank, Stockton. I cut out the middleman. Phone 3957.

E. W. WILSON, STOCKTON, CAL.

About Rabbit Fur

By Mrs. C. A. Richey.

I HAVE been experimenting with the New Zealand red rabbit and find the pelt of fine quality. At eight to ten weeks of age the pelt tans equal to a beautiful kid glove texture, and is equally strong. No doubt many of our imported gloves were made from the rabbit skin. Why cannot they be made in this country, thereby giving women work?

The pelts of the older New Zealand are wonderfully strong and heavy, some of them tanning like the well-known chamois skin that there is so much demand for in all countries.

The New Zealand red we have found to be a fine table rabbit and it has taken a great hold of the rabbit fanciers all over the United States. If purebred it has a beautiful rich buff-red that makes up into handsome wraps when properly matched in joining.

The flemish has a fine pelt, but the colors are not desirable for wraps, excepting the blue-blacks without any brown tinge, which are rare, and the handsome steel grays without any brown tinge. The pelt is very strong and could be used for a number of things, such as linings, auto robes and moccasins and slippers.

White Furs

Of course the solid colored furs such as white, gray, brown and black, will always be in the greatest demand for wraps and trimmings, and it is up to the rabbit breeders to produce such pelts that will bring them in the biggest profits.

The greatest demand is for pelts from fully matured rabbits, that will be from eight months to fifteen months of age. At the present high price of feed one would say it is impossible to breed to such an age with profit, but when you take into consideration the weight of an animal of that age and the value of a choice fur, you would be well repaid.

The bucks, as soon as they are old enough—about three months—should be castrated and they can then be put together in a pen large enough to keep them healthy.

The does at seven months of age can be bred and have as many litters as needed, then fattened up well and killed when the fur is in prime condition. This is another essential in the fur part of the business. No animal should be killed while moulting or shedding, and if the weather is warm should be killed in the morning. The cold night sets the fur and when the animal is warm the fur loosens as the pores open and close with the change in temperature.

To Prepare the Pelts

To prepare pelts is something the rabbit raiser should learn, for it is a means of making or marring the fur. When to be tanned for fur the skin should be carefully stripped from the rabbit, being careful not to cut or tear, and if possible all flesh and fat should be removed at once as it saves time and is much easier to take off at that time, but anyway it should be tacked evenly on a board, not stretched too much, but shapely, and well salted with cheap salt and put in the shade to dry, not in the sun.

When perfectly dry they should be sprinkled with Buhach powder and laid away where the bugs and moths cannot get at them. A tight fitting trunk or box is best. Once in a while look them over to see no insects have got into them and they will keep a long time, until you get enough to pay to ship them.

Pelts that are not to be used for fur articles can be stretched on a line and dried without salt, but should be kept in the shade and when enough have accumulated they can be shipped to a felt hat firm. The fur is scraped off and the pelts are made into glue. These do not bring much money, but it is better than burying them.

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J. E. CANNADAY, M. D., D-1 **Court Bk., Sedalia, Mo.**

Reference: Third National Bank, Sedalia, or ask your banker to find out about me.

Send this notice to some poor sufferer from eczema. It will be a kind act by you.

Keep Up Your Soil

Crop Rotation, Legumes, Nitrogen

By J. E. Greaves
Of the Utah Experiment Station.

TODAY we find the best farmers practicing some system of crop rotation. For they have observed from experience that where crop rotation is practiced the crops are bigger and better than where the single crop system is practiced. This is usually interpreted as indicating that crop rotation has increased the fertility of the soil. And we find many farmers planting legumes for a number of years on run-down soil, each year removing the entire crop and feeling confident that their soil is becoming richer in plant food.

Plants are composed of ten elements, each one of which is absolutely essential to their growth and formation. Only two—carbon and oxygen—are secured from the air by all plants; only one—hydrogen—from the water; the other seven are secured from the soil by all plants. One class of plants—the legumes—may, under appropriate conditions, obtain their nitrogen from the air.

Six elements—phosphorus, potassium, magnesium, calcium, iron and sulphur—are obtained entirely by the growing plant from the soil.

The great majority of agricultural soils contain large quantities of all of these essential elements with the exception of nitrogen, phosphorus and potassium—and these are used by the growing plant in larger quantities than are any of the other elements which are obtained direct from the soil.

In many soils nitrogen, phosphorus or potassium is the limiting element in crop production. Therefore, our problem resolves itself into the question, can crop rotation maintain these elements in the soil in quantities sufficient for maximum yields? Phosphorus and potassium are obtained by the growing plant only from the soil; therefore, it is self-evident that no simple system of crop rotation can maintain the phosphorus and potassium, as the quantity within the soil must of necessity be reduced with each crop removed—the extent depending upon the specific crop grown.

How to Maintain Nitrogen

Nitrogen is the only element which we can hope to maintain by crop rotation. But this is the element that is found in the soil in smallest quantity and removed by most plants in larger quantities than the phosphorus or potassium. Moreover, large quantities of this element are lost from the soil by leaching.

Therefore, it is of the greatest importance that this element be supplied to the soils in sufficient quantities for crop production and that in the cheapest manner possible.

Nitrogen exists in the atmosphere in inexhaustible quantities, every square yard of land having seven tons of nitrogen lying over it, or if the quantity covering one acre could be combined into the nitrate it would be worth as a fertilizer $125,000,000. Now, it has been demonstrated that the legumes—peas, beans, alfalfa, etc.—when properly infected have the power of feeding on this limitless supply of atmospheric nitrogen, while the non-legumes—barley, wheat, oats, etc.—must depend upon the supply within the soil, and the farmer must take advantage of this fact to supply nitrogen for his crops. But will the legume draw nitrogen from the atmosphere while there is a supply in the soil, or will it follow the line of least resistance and turn only to the atmosphere when nitrogen is lacking in the soil?

If it does, it must first drain the soil of its valuable nitrogen and thus leave it no richer than it was before the legume was grown upon the soil.

What Experiments Show

Experiments which have been conducted at the Utah Experiment Station during the last twelve years have demonstrated that even on soils poor in nitrogen the legume first feeds upon the combined nitrogen of the soil. It is known that plant residues and other complex nitrogen compounds found in the soil are transformed by bacteria into ammonia and this in turn by another class of bacteria into nitric nitrogen, and it is mainly on this nitrogen that the growing plant feeds.

The quantity of this found in the soil at different periods under different plants has been measured at the Utah Experiment Station and the average results for twelve years are given in this table:

Nitric nitrogen found under various crops at different seasons of the year—pounds per acre to a depth of six feet:

Crop.	Spring.	Midsummer.	Fall.	Average.
Alfalfa	22.3	15.8	32.8	23.6
Oats	35.7	14.1	20.6	23.5
Corn	24.8	18.9	22.0	21.9
Potatoes	81.1	60.8	54.2	65.3
Fallow	81.5	53.6	62.6	65.9

Here we find the legume, alfalfa, removing the nitric nitrogen from the soil just as fast as do the non-legumes. Yet this soil was well inoculated with the symbiotic bacteria which undoubtedly assisted the alfalfa in obtaining free nitrogen from the air when needed, but not until the soluble nitrogen had been drained from the soil to its full extent, as is shown by the fact that alfalfa soil never contains more than does oats and corn land and is very poor as compared with potato and fallow soil.

(To Be Continued)

Using Wheat as Feed

MUCH of the wheat in Northern Montana last year was not hauled to market, because the farmers fed it to their livestock.

A. U. Sand of Opheim, in explaining the reasons for this, stated that at present prices, with government regulation of the price of wheat, only oats and corn are worth more per hundred than wheat, and that instead of feeding the usual feed to horses, cattle and hogs, the farmers were feeding wheat.

For instance, the fixed price of wheat on the $2.20 basis in Chicago makes wheat worth $1.97 in Glasgow and as all wheat is not perfectly clean, a fair estimate is about seven cents per bushel for dockage; it is worth 45 cents to haul the wheat to the railroad, on a rate of overland freighting a 75 cents per hundred weight. This reduced the actual price of the wheat to about $1.45 per bushel.

Help Poor Farmers

By Elwood Mead.

BROADER opportunities must be given to poor men to buy farms. Continued increase of non-resident ownership of land and the extension of the area cultivated by tenants must be checked. The nation wants food, but men to provide it cannot be had. The movement of labor into the cities goes on. The high cost of living has a close relation to the narrowing opportunities of the farm.

In no respect is there greater need of a change in American agriculture than in the treatment of the American farm laborer. Intelligent, dependable, trained men, willing to work on farms for wages are as essential to success as are the farm-owners.

The farm laborer now, as a rule, lives in a bunk house; he has no social status. He competes with the Asiatic and the peon and degenerates into a hobo. If he is married, he is usually separated from his family for long intervals, which is bad for the family and bad for society.

The new land-settlement plan which has been adopted by California provides for changing these conditions by recognizing the farm laborer as a valuable member of rural society and by creating for him a congenial environment.

The farm laborer will be able to buy a home, which will include two acres of land and a comfortable, sanitary cottage. The initial payment required will be small, and the following payments will extend over a period of twenty years. This will enable the laborer to live with his family. He will have a place where he can employ his time profitably when not working for wages. His family will be able to keep a cow, some pigs and poultry, which, by providing a large part of his family's food supply, will enable them to live cheaply.

The greatest benefit of this innovation is the influence it will exert on the lives and the characters of the farm laborer's wife and children. A home of their own will make them independent. It will create character and self-respect.

More than any other influence it will check the tendency to regard farm laborers as social outcasts and the present tendency to render it necessary to import people who are politically undesirable to till our idle fields.

Weaning Kids

WITH goats for milk, as with cows, it is best to take the young kid from the mother soon after birth and raise it by hand says the Farm Journal. If the kid is taken within a few hours, and the mother milked dry and given a bunch of hay to nibble, and a drink of water (warmed if the weather is cool), she will not worry for the kid as much as if it is left with her a few days and she grows fond of it.

The kid will readily drink from a baby's bottle, using a straight nipple with the hole somewhat enlarged. The milk should be its own mother's milk, and the kid should be fed about every three hours from morning until bedtime (not during the night) for the first two days. Only three or four ounces will be taken at a feeding at first; more may produce scouring. In a few days the quantity can be increased up to as much as the kid is willing to take. As more is taken at one time, the times between feedings can be extended. About the fourth day it is quite likely the kid can be trained to drink the milk from a shallow pan.

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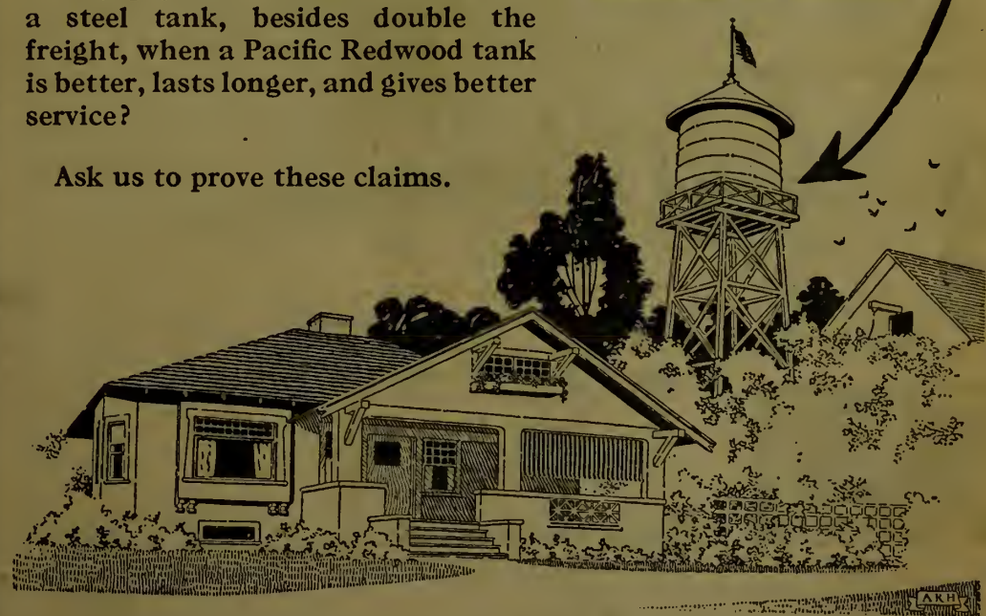

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We are selling out our line of Mandy Lee Incubators. While they last we will offer the 140-egg Mandy Lee Incubator for $16.00, f. o. b. Los Angeles. These machines are a snap at this price. Six patented and distinctive features. Absolute satisfaction guaranteed. A few of the other sizes for sale. WRITE FOR CATALOG.

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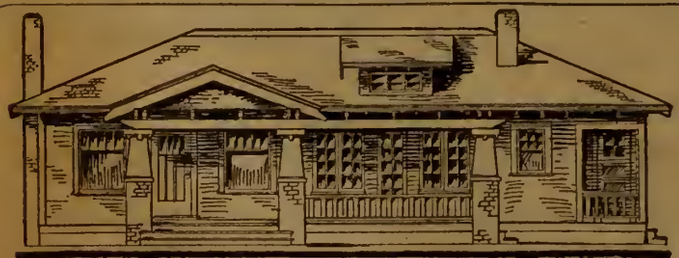

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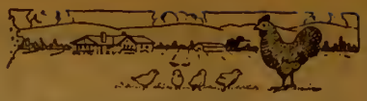

Lighted Henhouses

(Continued from Page 3)

was $3618. The cost of the electric outfit was about $60. The cost of feed, with the expense of the lights and all other outcome, was $1869, leaving a clear profit of $1749 for the year's work. This, for 650 hens, would be a net of $2.84 a hen, beating the famous $2 hen by a large majority. But the actual net average was nearer $3 than that, for there was one month when only 400 hens were on the job.

Mr. Wiley feeds his hens all they will eat of dry mash and green stuff, but gives them grain only once a day, in the evening.

He is in a position to make a very good income this year with his large accession of layers.

Holloway's Industry

When it comes to income in the poultry business, however, B. R. Holloway, referred to in the opening of this article, has a lot of the San Fernando poultrymen backed off the map. Mr. Holloway was an express messenger running between Los Angeles and Phoenix, Ariz., in 1910. In February of that year he borrowed $500 and started to raise chickens with one little incubator. Today he has 112 incubators and of late has been making $6000 to $9000 a year net. He settled in Van Nuys in 1913, with 1000 hens. The first year he made a profit of $1.87 per hen above feed. In the spring of 1914 he sold 20,000 chicks. In 1915 he sold 77,000 chicks in the spring and reared 3000 in the fall. In the spring of 1916 he hatched 130,000 chicks and in the fall 37,000. He hatched 190,000 last spring and his record for 1917 is 220,000.

Holloway has been hatching over 80 per cent of the chicks in the upper San Fernando Valley, and his business has been branching out for 40 miles to the east. His hatchery has a capacity of 60,000 chicks every three weeks. He keeps over 31,000 breeding hens of the first quality.

"I am not afraid of the high price of feed," said Holloway to the writer. "True, many are going out of the poultry game, but as many more are coming in. When I came here there were only 3000 laying hens in the district; now there are 150,000, and I have hatched a big proportion of them. Yes, I believe in electricity, and am lighting all my henhouses."

Mr. Holloway, like Charles Weeks, believes in plenty of green feed for hens, but he also believes in plenty of grain and mash.

"What would be your advice as to a person going into the poultry business at this time?" he was asked.

A Good Outlook

"I would say that anybody who wants to get into the game had better get in," was the reply, "and not be sitting around waiting for lower feed prices. I have more orders on hand now than ever before at this season of the year, and I don't think there is going to be any great scarcity of poultry. No, eggs are not going to be much higher on this coast. When they retail above 60 cents nobody buys them. That is the reason why eggs have increased only 25 per cent while feed prices have gone up 75 per cent."

Mr. Holloway spoke a last word on electricity.

Tells Why Chicks Die

E. J. Reefer, poultry expert of 377 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent of all chicks hatched and cures white diarrhoea over night. All poultry raisers should write for this valuable free book.—Adv.

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A Homesteader Wins

(Continued from Page 4)

count was no more; the purse was flat, and the larder was fast assuming the aspect of Mrs. Hubbard's proverbial cupboard. So Mr. Landis went to the institutions and resorts in the valley and labored as carpenter's or stone mason's helper for a time, while the good wife attended to the stock and farm work.

A year passed, another and yet another. Slowly they began to see results. Recently when we visited the homestead we found the pretty little bungalow partly hidden in a riot of flowering vines and roses. Within, on the floor and walls, were skin rugs and mounted heads of deer, coyote and bobcats, all killed on the homestead or within a radius of three miles.

What the Years Have Brought

In the yard were shade trees, orange, lemon and fig trees. On the neat little lawn a high-pressure fountain spray was in action, which derived its supply and force from the spring higher up in the ravine. Water is piped to the different buildings and vegetable garden from the same source.

They have reclaimed about thirty-five acres from the wilderness, and on it are growing 200 apple trees, 200 peach trees, 50 prune trees, a few acres of vineyard and many fig trees, cherry trees and pear trees, also vines, berry bushes and vegetables of all kinds. The rest of the land is in hay, woods, pasture and plain rocks.

Mr. Landis has won his bet with the Government. He has recently proven up on his claim, and is now owner of it all.

At the highest point of the homestead there is a grotesque volcanic rock formation. Near the top of this formation is a rock fashioned somewhat like a chair, which Mr. Landis calls his "throne," because from here he can survey all he possesses.

Mr. and Mrs. Landis are happy, though all is not poetry and pleasure on the homestead even now. They still must work, as many things remain to be done. But at the end of their day's labor they may now rest under their own vine and fig tree in the happy satisfaction that they are getting results from their work. They have plenty and to spare. But the greatest pleasure is knowing that they have beaten the H. C. of L. and at the same time are enjoying a heavenly independence.

Was It Luck? No

For last New Year's dinner they had oranges from their own trees and ripe tomatoes from their garden, while the piece de resistance was one of a large flock of turkeys raised on the homestead.

Perhaps they were lucky to locate this land and succeed. Was it luck to pick out a patch of uninviting jungle, where the hunter, the prospector and the homesteader had passed and repassed many times in the course of a hundred years? Was it luck to develop a trace of moisture into a flowing spring? Was it luck to live from hand to mouth for several years, until the soil yielded returns?

A personal investigation into the circumstances and conditions under which this homestead was developed will convince the most skeptical that it was not luck. Rather it was an overwhelming desire for a permanent home and independence, and the industry they were willing to exert.

They are indeed true soldiers of the Nation's commissary, doing their [illegible] on a brand new farm on the [illegible] inside of the century-long cul[illegible] Valley of the Moon

Uni-Lectric GASOLINE ELECTRIC LIGHTING SYSTEM

Electric Light for Your Farm

Uni-Lectric lighting plant generates standard 110-volt direct current; operates from one to fifty lights, electric motor, electric iron, vacuum cleaner, electric toaster, force pump, churn, washing machine, etc. No Batteries—No Switchboard—and a better machine for less money. High speed gasoline motor, generator and automatic governor, all complete in one small, compact unit. Uses standard lamps and fixtures. Simple, easily installed, dependable, economical. Costs less than other systems to buy and to operate.

Write today for full description and low price.

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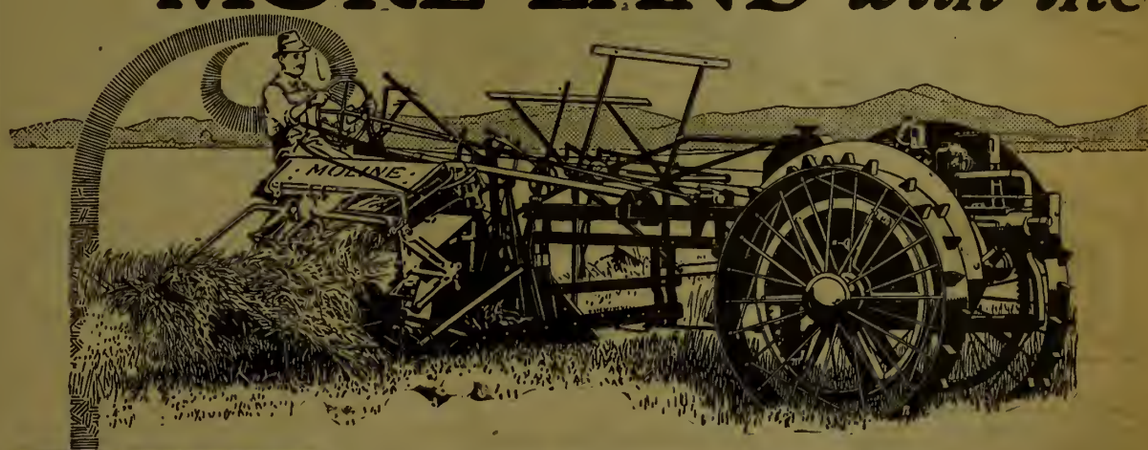
Complete day and evening courses in bookkeeping, accountancy, stenography, typewriting, English, mathematics, radio, preparatory, grade, electrical, mining, surveying, mechanical, automobile, machine shop, vulcanizing.

Also ideal grade and high school. Large faculty of specialists, swimming, gymnasium, etc. Send for free catalogs and name course in which you are interested. Address W. H. McCAULEY, registrar, 715 S. Hope st., Los Angeles, Cal.

FREE BOOK LAND PRODUCES FROM 6 TO 8 CROPS EVERY YEAR—Very fertile and productive farm land, producing from six to eight crops of alfalfa each year. Alfalfa yields six to eight tons per acre in eight months; a ton per acre per cutting per month, besides giving pasturage the remaining four months of the year. In other crops from two to three harvests each year are made, every farmer getting enormous returns. Beef cattle, milk cows, sheep, hogs and poultry produce big returns. This land is located in Imperial Valley, California. Free illustrated book of scenes, facts and figures. Address Orchard and Farm, Examiner Building, Los Angeles, California.

ONE MAN CAN FARM MORE LAND *with the*



Plowing

Harrowing

Seeding

Cultivating

Mowing

MOLINE UNIVERSAL TRACTOR

"It Solves the Farm Help Problem"

TWO MILLION MEN will be gone from the farms because of the war—strong, skilled, willing workers, only a small part of whom can be replaced by older men, boys and women. Yet production of food must be increased. There is only one way—equip the men left on the farms so they can do more work than ever before.

With the Moline-Universal—the original two-wheel tractor—*One Man* can farm more land than was ever before possible, because—

One Man has power at his command equal to five horses, capable of doing the work of seven horses owing to its greater speed and endurance. This power is always available for any farm work.

One Man operates the Moline-Universal Tractor from the seat of the implement to which it is attached, where he must sit in order to do good work.

One Man can start in the spring and go from one operation to another—plowing, harrowing, planting, cultivating, mowing, harvesting grain or corn, spreading manure, filling the silo, cutting wood, etc., doing all farm work from one year's end to another, independently of horses or hired help.

All these one-man operations with the Moline-Universal are possible because it is mounted on two wheels, all its weight is traction weight; it is powerful—pulls two 14-inch bottoms easily—yet it is light so that it does not pack the soil. The Moline-Universal attaches direct to the implement, making one compact unit.

One woman or boy operates the Moline-Universal as easily as a man. Miss Ruth Harding of Albion, N. Y., a proud owner of a Moline-Universal, writes: "I have never called a man from his work to assist me with the tractor in any way."

Thousands of Moline-Universal Tractors are now at work under every conceivable condition in all parts of the United States and in Canada, England, France, Sweden, Norway, Denmark, Russia, Italy, Spain, Mexico, Peru, Argentine, Brazil, Cuba, Gautemala, South Africa, Australia. Wherever a Moline-Universal Tractor is sold there is immediately a big demand for more.

The demand for Moline-Universal Tractors has far exceeded our expectations. We built an enormous factory which is devoted entirely to making Moline-Universal Tractors and three times have erected large additions to cope with the enormous demand. We now have the largest tractor factory in the world.

Moline sales and service branches cover the country. No purchaser is ever more than a few hours away from Moline service.

The Moline-Universal will solve your help and power problems. It is ready for you now. Write us today for free booklet giving full description of the Moline-Universal and name of nearest Moline dealer.

Address Department 48

MOLINE PLOW COMPANY, Moline, Illinois

Where Disease Shows First

Just watch the milk yield for the first sign of weakening in the cow's system. If your cow is not giving the quantity or quality of milk you expect, it is time to give her medical attention.

For twenty-five years thousands of the most progressive dairymen have used Kow-Kure as their "first aid" when a cow shows signs of "falling off" or coming down with disease. Particularly before and after the calving period, the use of Kow-Kure is valuable. It is a sure preventive of Milk Fever and Retained Afterbirth, and will enable the organs to resist the diseases which frequently originate at this time.

Kow-Kure has a positive action on the genital and digestive organs, toning them up, making them perform properly and helping the system to function as nature intended. Kow-Kure has proven a prompt remedy for Abortion, Barrenness, Scouring, Lost Appetite, Bunches and other common ills.

A small investment will prove the worth of Kow-Kure in your dairy. Put it to a severe test; try it on your poorest milker and watch results. Druggists and feed dealers sell it; 55c and $1.10 packages.

DAIRY ASSOCIATION CO.,
Lyndonville, Vt.

Free Treatise,
"The Home Cow Doctor"
Sent to Dairymen on Application

REGISTERED BERKSHIRES

My herd is headed by Los Royal, son of Winona Champion and grandson of Laurel Champion; also Tehama Boy, son of Panama Lee, the 2d, and grandson of Lee's Artful Premier 1st. Stock from these herd boars are sure breeders. Write for further information to

W. Boyd Carpenter
BOX 98, RED BLUFF, CAL.

CATTLEMEN!

Your cattle brand must be registered with the Cattle Protection Board before February 20, 1918.

Applications received after that date will be given only secondary consideration.

Persons using unrecorded irons will be liable to arrest.

State Cattle Protection Board
Underwood Building,
San Francisco, California

CUTTER'S BLACKLEG PILLS

"California's Favorite" for nearly 20 years

For the Prevention of Blackleg in calves and young cattle.

Their superiority is due to nearly 20 years of specializing in "Vaccines and Serums only."

Year in and Year Out they give better satisfaction than any other vaccine made, and the cost of a few cents per dose is cheap insurance against a disease that always takes the fattest and best.

Single Pills may be used for ordinary and range stock.

Double Pills should be used for pure bred and high grade stock.

Use any Injector, but Cutter's is simplest and strongest.

Prices:
10 dose pkge. Single pills $1.00
50 dose pkge. Single pills 4.00
10 dose pkge. Double pills 1.50
50 dose pkge. Double pills 6.00
Cutter's Pill Injector.... 1.50

Insist on Cutter's. If unobtainable, order direct.

Write for new booklet, "The Control of Blackleg." It tells about Anti-Blackleg Serum which cures Blackleg and may be used simultaneously with vaccine to combat outbreaks and safely protect valuable stock.

The Cutter Laboratory, Berkeley, Cal.

The Cutter Laboratory of Illinois, Chicago Eastern Agent.

Live Stock and Dairy

About Calf-Killing

By J. Ogden Armour.

MORE calves were slaughtered during the past year than in any previous year. Thousands upon thousands of young animals capable of being developed into good beef at a profit, were vealed—that is, slaughtered before reaching the beef stage.

Millions of pounds of meat were thereby wasted. Whether the waste was actual or theoretical, this fact stands out and stares us in the face: The present world meat shortage might have been considerably alleviated had a wiser policy in the handling of calves prevailed during the past years.

There is no excuse for the slaughter of beef calves and there is no justification for the maturing of all dairy calves. The problem is to raise all beef calves to maturity and to prevent the waste of food by extended feeding of excess dairy calves. It is a waste of food to raise dairy calves that are not to be kept for dairy purposes. The real danger in the dairy calf situation is that the propoganda against the slaughter of calves will be carried to extremes, resulting in a law prohibiting the slaughter of calves. A better plan would be to stimulate the production of calves by placing a premium on calves sired by pure-bred bulls, as the Massachusetts Board of Agriculture did last summer. Every promising heifer calf from a good producing dam should be saved without question.

Baby beef is economic from every angle. A great many of the beef calves which were sent to the Fort Worth and Kansas City markets during the past year were of the type that would pay if matured as baby beef. They averaged around 300 pounds, and in the hands of capable farmers who had the necessary feed available, they could have been made into 800 to 1000 pound meat animals before they were two years old, and at less cost than can three-year-olds, because young animals will make flesh out of a greater proportion of their feed than will older animals.

To my way of thinking, there is only one justifiable reason for killing calves, and that is a lack of feed. There were droughts throughout the Southwest this year, and in many sections the ranges failed to provide sustenance for the usual number of animals. The owners necessarily had to choose between shipping their animals to market or letting them die of hunger and thirst.

A mere matter of sectional droughts, however, ought not to be permitted to force thousands of beef calves to be vealed. There were other sections of the country that could have absorbed the calves from the dry sections and turned them into heavy meat animals, and many were transferred by the government.—Farm Journal.

Visalia Stock Sale

R. F. GUERIN of Visalia, who is one of the leading Holstein breeders of California, has decided to sell his entire herd of mature cows next spring. He will retain only the heifers, the daughters of his herd sire, which also will be sold. The fact that his two sons have been called to war have led Guerin to this decision. He is unable to properly care for the farm at present because of the lack of labor and proposes to have a resting spell before the heifers freshen, and will be prepared to start in dairying again when his boys get back from the war.

Sheep-Killing Dogs

ALL through the West and, for that matter, all over the country, there is a strong movement to put down the sheep-killing dog. Legislation to this end is sought by the sheep raisers of Utah, Idaho and Wisconsin, and it is a movement that will arouse much interest in California for the depredations of roving dogs are a serious menace to the sheep industry of the Golden State.

Some time ago the Sacramento Bee told of a movement having been started in California by the Berkshire breeders to get some action toward the elimination of the roving dog. That article told of how a Solano county man had lost nearly $1500 worth of sheep in a single night.

The Breeders' Gazette of Chicago quotes an Ohio farmer, who wrote to his State Food Administrator about the dog menace as follows:

"In our township there is enough idle land to keep 1000 sheep, and if the farmer had protection from dogs he would soon grow all the wool and mutton our country could use.

"Owing to the scarcity of farm labor there will be more idle land the coming year, and the best remedy for the scarcity of farm labor is to raise sheep.

"I alone have had enough sheep destroyed by dogs to pay for the average 100-acre farm in Ohio. Give the farmers protection from dogs and they will soon be able to grow all the mutton and wool we can use."

Hereford Sale in April

A MEETING of officers of the Pacific Coast Hereford Breeders' Association was held in Dixon recently. Those in attendance were John A. Bunting of Mission San Jose, D. O. Lively of San Francisco, W. D. Duke of Likely, H. H. Gable of Esparto, Professor Gordon H. True of the University Farm and W. R. Madden of Dixon.

Plans were laid for a big public sale of registered Herefords at the University Farm in April. The lunch will consist of forty heifers and thirty five bulls, contributed by the members of the association, of whom there are twenty five. This sale will be a noteworthy event among the cattlemen, for some of the best stock in the State will be on sale.

A committee will be appointed to select the stock.

New Herd Boar

THE Highland Stock Farm of Fair Oaks, owned by R. L. Robertson and D. W. Ward, has just purchased a new herd boar, a Chester White, from W. P. Barr of Ames, Iowa. This boar is sired by William A., many times a champion, and is out of Our Maid 3rd, grand champion, at the National Swine Show this year.

The Highland Farm also reports the following deliveries to Hiram Hendren of Fair Oaks, a gilt; to Reginald Kumbly of Fair Oaks, a gilt; to A. L. McLean of Stockton, 20 head of feeders; to Harold Breadley of Fair Oaks, a gilt and to Herbert Cooper of Auburn, two gilts.

We can do this with all the greater zeal and enthusiasm because we know that for us this is a war of high principle, debased by no selfish ambition of conquest or aggrandizement; because we know, and all the world knows, that we have been forced into it to save the very institutions we live under from corruption and destruction.—President Wilson.

"Good to the Last Drop"

CALVES relish and thrive upon Blatchford's Calf Meal, the milk substitute. They increase in size and weight rapidly; are healthy and vigorous, no indigestion—no scouring.

Blatchford's Calf Meal

[illegible] be used to push the calf forward to a grain diet. This important move is more essential now than ever.

Write for Booklet "How to Raise the Largest Calves at the Smallest Cost." If you raise any calves write for the booklet. It is mailed without cost.

BLATCHFORD CALF MEAL COMPANY, Dept. 118, Waukegan, Ill.
COULSON POULTRY & STOCK FOOD CO., Petaluma, Calif.
GERMAIN SEED & PLANT CO., Los Angeles, Calif.

SHORTHORNS

Paicines Ranch Company

offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves.

For prices and particulars, apply to

David J. Stollery
320 Sharon Building
San Francisco, Cal.

THE ORIGINAL CHEMICAL **Indoor Closet**

30,000 SOLD—FIFTH YEAR

More Comfortable, Healthful, Convenient

Eliminates the out-house, open vault and cess pool, which are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

ABSOLUTELY ODORLESS

Put It Anywhere In The House

The germs are killed by a chemical process in water in the container. Empty once a month. No more trouble to empty than ashes. Closet absolutely guaranteed. Guarantee on file in the office of this publication. Ask for catalog and price

ROWE SANITARY MFG. CO 9202 6th ST., DETROIT, MICH.

Ask about the Ro-San Washstand—Quiet and Cold Running Water Without Plumbing

D. O. LIVELY STOCK FARM INC.

215 Hobart Bldg., San Francisco,

Breeders of Hereford Cattle

A few choice heifers for sale. We buy and sell livestock on commission. Farm at Mayfield, Cal.

Chief of the Department of Livestock Panama-Pacific International Exposition, 1915.

Rose Crest Berkshires

The blood of such great sires as Masterpiece, Revels, Champion's Best and others. None better on the Coast. I am offering at present 14 boars and 10 gilts farrowed in 1915, also [illegible] of both sexes.

[illegible] headed by Rookwood Baron 10th No. [illegible] and Ames Revel 118 No. 217854.

For [illegible] particulars and prices address

F. L. HALL, Perris, California.

[illegible] Write for free book of scenes, [illegible] on big crops in Imperial [illegible] all year. Address Orchard and Farm [illegible] Building, Los Angeles.

Cow Testing Profits

SIX Jackson county, Missouri, dairymen, who have been members of the cow testing association for the last three years, were able to increase milk production 1605 pounds, and butterfat production 81 pounds for each cow over the average production of their herds the first year. The increased income from each cow was $46.90. The average production of their herds for the year before they joined the cow testing association is not known, but it is safe to assume that it did not exceed 175 pounds of butterfat per cow. The average production of their herds the third year of cow testing association work was 310 pounds of butterfat per cow.

This means that the butterfat production was increased 135 pounds per cow as a result of three years of keeping records and testing, and because of improved methods of feeding and management.

At 53c a pound for butterfat, the average price received by the association members during the last year, this increase was worth $71.55 for each cow. There was an average of 131 cows in these six herds which meant an increase of $9373.05 a year for their dairy products above what they received from the same number of cows before they became members of the cow testing association.

Beware of the Bull!

SEVERAL times during the past few years Orchard and Farm has admonished ranchers to be very careful when in the neighborhood of a bull which they have any reason to consider dangerous. Bulls may be made very gentle by proper treatment, but where they run wild for a time they should be regarded with suspicion.

The latest victim of a wild bull is Rocco Iam, a rancher near Hughson, Stanislaus county, Cal. As reported in the Hughson Citizen, Mr. Iam entered the yard where he kept his bull, and without warning of any kind the bull made a rush at him and gored him in the abdomen with its horns, making a terrible gash. Again and again the bull attacked Iam as he lay helpless on the ground, goring him with his horns.

At last persons hearing Iam's cries hurried to his assistance and finally drove the enraged animal away. Iam was so badly torn in his abdomen and bleeding, that it was decided to rush him to Modesto to a hospital, where he could receive the proper care and treatment.

At last accounts Iam was at the Evans hospital in Modesto, and his condition was regarded as very serious and it was extremely doubtful if he would recover. His abdomen was literally torn in shreds by the terrible slashing of the bull's horns.

To Get Twin Lambs

ONE means of encouraging the bearing by ewes of a larger number of lambs is that of flushing them just before breeding time. Though not much used in this country, the method is nevertheless recognized by old shepherds as a good one.

Flushing means graining or liberally feeding the ewes for a short time before turning in the ram, so as to make the females especially thrifty and rapidly gaining in flesh at the time of service. It has been found that where this is done that more ewes give birth to twins than is the case when they are on poor feed at breeding time. It increases both the number of lambs and makes more of them come during the first three weeks of the lambing period.

THE **NEW DE LAVAL CREAM SEPARATOR**

Will Give You Greater Capacity, Longer Wear, Better Service, Bigger Value

THE bowl of the New De Laval has greater capacity for a given size and a given speed than any other. The experience of thousands and thousands of users has proved that a De Laval will outlast and outwear any other make.

Look well to service when you buy a cream separator. That means more than anything else. That should include not only a good working and reliable machine, but the right sort of attention and interest on the part of the seller, not only at the time the machine is set up but as long as you continue to use it. De Laval service is well known. You can depend upon it.

Value depends upon the amount and quality of service the separator gives you—what you get out of it. You get more value for your money when you buy a De Laval, because it will give you more and better service than any other separator.

Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or if you don't know him, write to the nearest De Laval office as below

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST.
Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Acme Ensilage Cutters and Blowers, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.

61 BEALE STREET, SAN FRANCISCO

Daily Milk Record Sheet

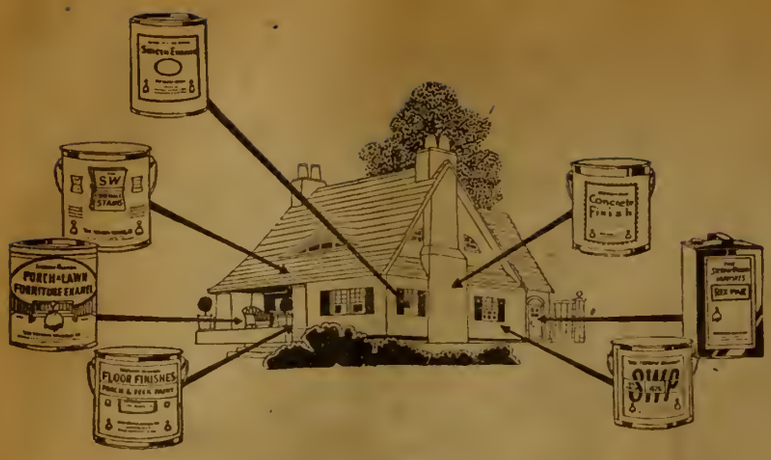
For Ten Cows, Size 10 ins. by 17½ ins.

6 Sheets for $ .25, Postpaid
15 Sheets for $ .50, Postpaid
25 Sheets for $ .75, Postpaid
50 Sheets for $1.25, Postpaid
100 Sheets for $2.00, Postpaid

If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.
Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

ADDRESS

ORCHARD AND FARM
Examiner Building, Los Angeles, Cal.



Paint that goes farthest and endures longest

THE Sherwin-Williams business has been built upon the sound principle that a paint or varnish best serves its purpose when made for a particular purpose. To that end our specialists have studied surfaces, the wear they get and the use they serve, and made a special finish for each.

It is this specializing that guarantees greater durability in every Sherwin-Williams finish you buy.

Protect your house, barns, cribs, fences and implements with these high-grade enduring finishes. Your dealer can supply you.

Spray with Sherwin-Williams

Arsenate of Lead

AND

Dry Lime Sulfur

in powdered form

They quickly destroy all leaf-eating and chewing insects without injury to the foliage. Being powder, they cannot deteriorate or freeze, if carried over the winter. When mixed with water, they form a perfect solution that stays mixed, spreads evenly and thoroughly and sticks fast. We gladly send to farmers our painting booklet, "The A B C of Home Painting" and authoritative spraying literature.

Address The Sherwin-Williams Co., 805 Canal Road, N. W., Cleveland, Ohio.

SHERWIN-WILLIAMS PRODUCTS

Wonderful New Alfalfa

Big Yield of the Hairy Peruvian

By C. R. S.

SINCE the introduction of alfalfa into the State of California, there has been nothing of such vital interest to alfalfa growers as the development of the wonderful new type of alfalfa called the Hairy Peruvian.

Several years ago the United States government, through one of its representatives in Peru, secured a small quantity of this seed for experimental purposes in different sections of the United States. In order to give it a good trial, this seed was distributed among some of the leading alfalfa growers in Arizona and California.

The first results were so wonderful that the University of Arizona Experiment Station, which in the past nine years has constantly endeavored to secure a more desirable alfalfa than the varieties it already had growing, decided to test out the new Hairy Peruvian. After seven years of experimenting at the station with this variety of alfalfa, it was finally introduced in general to the farmers throughout the Southwest in the fall of 1916. Immediately afterward one of the leading seed houses of Southern California, which had been following very closely the experiments conducted by the Arizona Experiment Station with this alfalfa, purchased practically the entire stock of seed which was available at that time in Arizona and distributed it throughout the entire State of California, until today there is hardly a county in the State in which this alfalfa has not been thoroughly tried.

A Prolific Variety.

The writer has personally investigated many of these fields, growing under varying conditions at altitudes ranging from below sea level to as high as 6000 feet, and in every case the owners of the different ranches stated that it was without any doubt the best variety of alfalfa they ever had grown or seen.

I have found that the Hairy Peruvian Alfalfa hay is not only far superior to other varieties of alfalfa, principally due to the fact that it has more leaves and finer stems, but under the various conditions it also outyielded the common Chilean alfalfa at the Arizona Experiment Station.

As it is naturally the desire of every alfalfa grower to produce the largest possible tonnage of alfalfa hay per acre with a minimum of expense, he must always bear in mind that he is dealing with a growth of the highest food value, capable of being used as a ration for all farm animals and a plant that will continue to produce well through a generation, and perhaps longer. It is therefore necessary to plant only that variety of alfalfa which will give him the greatest return on his money.

While the price of seed of this variety of alfalfa is nearly double that of the common Chil an variety, there is no doubt in my mind that the investment is well worth the difference, and the additional production of hay the first season will more than make up the difference in the cost of seed.

As with any new article introduced on the market, there is always a certain amount of speculation and therewith the danger of unreliable persons offering seed for sale which is not always true to name. This makes it necessary for the farmer purchasing alfalfa seed to buy only from such firms as have an established reputation and who guarantee the genuineness of the article offered.

One of the special features of this alfalfa that I have found during my investigations is the fact that it is much hardier than the common Chilean variety of alfalfa, and therefore starts producing earlier in the spring and continues to produce later into the fall and early winter months.

Hairy Peruvian Is a Prolific Type of Alfalfa.

The following are a few reports from ranchers who have this wonderful alfalfa growing on their ranches

Reports From Ranchers.

Hairy Peruvian alfalfa was sown last March on my land and has resulted in a very satisfactory stand, and even more satisfactory production. It has produced a larger quantity of hay of better quality than ordinary alfalfa under the same conditions.—Arthur P. Moran, Boston Land Co., Huron, Cal.

I never took greater pleasure in testifying to the merits of anything than I do in stating that the Hairy Peruvian alfalfa is all they claim for it. The hay is the finest I ever saw, full of leaves from top to bottom. Have cut six times in seven months from time of seeding.—Dr. T. B. Spaulding, Turlock, Cal.

Seeded five acres to Hairy Peruvian alfalfa. It has made a strong, vigorous growth and will cut close to two tons per acre on my fourth cutting.—C. A. Kirkpatrick, Lancaster, Cal.

Results obtained with Hairy Peruvian alfalfa are very satisfactory, as it did much better on the same ground and under the same conditions than other alfalfa seed that has been used by us.—Ralph H. Cook, Long Beach, Cal.

Although I have been short of water, the Hairy Peruvian alfalfa has stood the drought and yields heavier than the common Chilean alfalfa.—James Sorben, Whittier, Cal.

My results with Hairy Peruvian alfalfa sown the same day as the common alfalfa are as follows: The Hairy Peruvian made the better stand, made a cutting first, makes more to the cutting, and will not dry out as quickly as the common variety.—W. M. Taylor, San Bernardino, Cal.

The Bushy Blue Gum.

A Good Windbreak

THE great value of rows of trees used as windbreaks often has been urged by Orchard and Farm. The bushy blue gum, a distinct variety of windbreak trees, has lately been introduced in California by a local nursery. With no pruning whatever, the bushy blue gum forms a symmetrical, rounded, compact tree. It does not form any main trunk and the branches are indefinitely divided, giving a solid mass of foliage from the ground to top. The lower foliage is like that of young growth of common blue gum, but considerably smaller and even more silvery. When five or six years old it commences to develop the longer, narrow leaves toward the top. It makes a fine single specimen and is also one of the most efficient windbreaks that can be planted in California.

Do You Need $400?

GREAT interest is being manifested in the announcement of another Orchard and Farm contest, described on Page 19 of this issue.

Orchard and Farm contests attract widespread attention, owing to the liberal prizes and commissions offered and the fair and just manner in which the competition is conducted.

The one just announced presents features of compelling attractiveness. Interest is at once aroused when it is known that the first prize is $400 in gold, and six other cash prizes. While this tells the big part of the story as to the cash prizes offered, there is still a feature which will appeal to a very large number.

This is the 30 per cent cash commission which will be paid to all those entered in the contest; in other words, this is a contest in which there are no blanks.

Orchard and Farm has just printed a sixteen-page booklet giving a full description of this competition, including testimonials from contestants in former contests, which will be mailed free upon application. You owe it to yourself to read this booklet if you are in need of a little extra or spare time cash.

A card will bring the booklet by return mail, and the application places you under no obligation. Address Orchard and Farm, Examiner Building, Los Angeles, Cal.

The total acreage sown to crops in 1917 in the uninvaded portion of France showed a decrease of 24.4 per cent from the acreage in 1913. The burden of agriculture which has rested since the war on old men, women and children will be lightened considerably by the 1500 farm tractors being shipped to France this winter by the United States food administration.

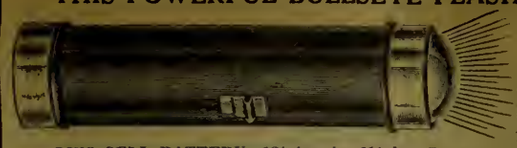
A Drugless Cure

Lewis Howell Rogers, 303 West Avenue 61, Los Angeles, has been awarded a Diploma of Honor by finding a Drugless Remedy for any disease without material expense. Send to Dr. Bowers for his free booklet.—Adv.

EGGS AND CHIX

Eggs and day-old chicks for sale. R. I. Reds and Barred Rocks, eggs $14 per 100. S. C. White Leghorns from trap-nested stock, eggs $17.50 per 100. Our S. C. White Leghorn cock took first prize at the Los Angeles Show. Address THESSALY FARM, Mr. and Mrs. W. V. S. Webster, Props., R. F. D. 1, 1878 Junipero Ave., Long Beach, Cal.

THIS POWERFUL BULLSEYE FLASHLIGHT GIVEN FREE



TWO-CELL BATTERY—1¾ ins. by 6½ ins. Long.

Sell 25 Envelopes American Flag and Service Flag stickers at 10c each. Order today. Send no money.

The Boys' and Girls' Friend, San Bernardino, Calif.

HERCULES DYNAMITE

He Read the "Ad"

He was discouraged. An orchard that he had counted on for a good income was panning out badly.

And then, one evening, he was reading the paper that you are reading now. The words, "There'll Be A Difference," at the top of an "ad" caught his eye. He read what was said about planting and cultivating orchards with Hercules Dynamite. At the bottom there was an invitation to write for a book, "Progressive Cultivation."

He Wrote for the Book

It arrived promptly. After he had read it he had a new "slant" on the planting of trees and the cultivation of orchard land.

He gave Hercules Dynamite a trial. (Although he was a little skeptical at first.) Now you couldn't break his faith in Hercules with a crowbar. A fat balance in the bank is the reason why.

Perhaps *you* have an orchard that hasn't quite come up to scratch. Or perhaps you are about to plant a new one. In either case take a tip from the fellow above.

Write for a free copy of "Progressive Cultivation." You'll read with especial interest what is said about orchards on pages 17 to 21. Write today. The coupon below is convenient.

HERCULES POWDER CO.

San Francisco California

Hercules Powder Company
San Francisco, California.

Gentlemen:—Please send me a copy of "Progressive Cultivation." I am interested in dynamite for _____

Name _____

Address _____

DIVAN-BED

No home complete without one.

In the daytime a davenport, at night a bed. Occupies less space than a piano. Adds to the luxury of your home. Opens like a jack-knife. So simple any child can operate it. It is made in any covering—

Genuine Leather, Imitation Leather, Tapestries, Velours and Damasks

¼ sawed oak, or a beautiful mahogany finish. Will last a lifetime. Takes any full size mattress.

Can be had at any dealer's. If your dealer cannot supply you, write us.

Continental Furniture Manufacturing Co.,
1640 Bryant Street, San Francisco

DEALERS

The two largest manufacturers in the United States are now furnishing us with the steel parts used in the construction of the DIVAN-BED. From now on we will be able to fill orders.

Continental Furniture Mfg. Co.,
San Francisco:

Send me full description of the DIVAN-BED.

Are you interested in other furniture for your home? ——Yes. ——No.

Name .....

Address .....

If readers of this publication do not find advertised just what they are looking for, write Orchard and Farm, Examiner Building, Los Angeles, and you will be put in touch with reliable firms handling the goods desired.

Fine, Mist-Like Spray

under heavy pressure is the only kind that does the work properly. Our famous Tiger strainer nozzle gives a fine mist-like spray, forming a cone of large angle.

The FIELD-OSPRAYMO engines and pumps yield a maximum and constant pressure that lightens labor and insures a perfect "cover" of foliage.

Automatic agitators keep the liquid in constant solution. Brushes clean the suction strainers, and prevent sediment from clogging pumps and nozzles.

OUR 1918 CATALOG

describes the entire O. pra. o Line in detail. Write for a **Free Copy.** For 10c we include the handsome book "Why and How of Orchard Success," an authentic spraying guide of 94 pages.

FIELD FORCE PUMP CO.
Department 8 Elmira, N. Y.

Warehouses at Oakland and Los Angeles, Cal. Address Field Force Pump Co., showrooms at 161 Los Angeles St., Los Angeles, Cal.

Troubles of California Potato Growers

(Continued from Page 5)

around a long time without being sold, and then went at a low price. About an acre and a half of White Rose proved much earlier than the British Queen and were dug as needed before the British Queen were harvested, bringing as much as 5 cents a pound delivered in the two nearest towns, and from that down to 3 cents. The lesson is, in an early district take the earliest possible varieties and then plant at the earliest possible time.

Odds and Ends of Facts

Both years I was particular about seed quality and largely on that account had heavy yields and good quality tubers. Good soil and culture helped. Of the four plantings in the immediate vicinity in 1917 mine was the only one with nothing but A-1 seed and the only field that made anything like a first class crop. Most of the other plantings were in large part from seed grown along the river to the north of us. Potatoes do well there, but make mighty poor seed.

Another thing required is to dip potatoes. No one plants potatoes right here without dipping, either in formalin or corosive sublimate solution. Planting undipped potatoes has been tried several times, with disastrous results.

Diagonally across the road from me a Japanese, living several miles away, rented the ground between vineyard rows for potatoes. He was such a good gardener that he could grow them without irrigation, so he thought, and to his sorrow he learned his mistake. Potatoes enjoy and thrive on a lot of moisture in the soil and plenty of cultivation.

As to varieties, British Queen is first class, but too late for an early variety. White Rose made beautiful potatoes and early ones, but mostly two to the hill, which reduced the yield. However, the plants were so small that I feel certain that the yield could be brought up and earliness retained by close planting, particularly if the ground were well fertilized. So, I would say, adjust distance of planting to the variety being planted. A few Irish Cobbler potatoes grown were hardly as early as the White Rose, but far better producers.

The potatoes were dug with a cheap and simple digger, the potatoes being left considerably mixed with clods and dirt, and a good many were overlooked in picking as a result. My opinion would be strongly in favor of having an expensive digger, which would cut fewer potatoes and leave them lying on top of the ground, where they could be picked up much quicker and cheaper and with few tubers overlooked and lost than when a cheap digger was used. The problem of the money that can be put into a digger depends mainly upon the extent to which the digger can be used. One digger and planter will do for a small community if the area is not too great, the owner charging for the use of the implement.

Handling Is Expensive

Another thing I learned is that it pays to sell the potatoes right out of the field, if possible, without rehandling or resorting. Small potatoes, for example, grown on the plains are in demand by river growers north of us for seed. The bulk of mine were sold out of the field and with no more time or expense required The buyer re-sorted them to cull out cut and rotting potatoes, paying 50 cents a sack for culls for hog feed and a substantial price for the good seed. He took all the trouble of handling off my hands and got just what he wanted for seed, so each side was fortunate.

Most of the remaining No. 2's were hauled to the bin. A man from another county hunting for seed engaged them and when I started to pick them over and re-sack them I vowed that it would be a long time before I got that job again. The time and trouble would cost more than the seed. Then, for good measure, the market got demoralized about that time, Mr. Potato Grower got scared of his bargain, did not show up, and I had the potatoes on my hands after all my trouble. As far as marketable potatoes were concerned, neighbors who did not sell their main crop at the time of digging had the pleasure of re-sorting them in their barns and throwing out a lot of rotten ones, for our potatoes will not keep well, and it certainly proves poor business to hold and re handle potatoes where there is the slightest possibility of selling them right away This would be less true of good-keeping, late potatoes than of what we grow here.

Marketing Matters

In 1916 the best offer that came to the place was $1.25 per hundred weight, f. o. b. nearest railroad siding. I had them shipped to San Francisco, the first car netting slightly more than $1.35; the second car slightly more than $1.25. Not being familiar with the ropes, I sold on commission but was on hand to see that the price was O. K. This system of selling a car on commission or otherwise is simply to sell the car to a dealer, who, in turn, sells the potatoes to his customers. I could have gotten just as good a price, or at least within a shade of it, as did my dealer, and I would have saved the commission, which is 8 per cent. In other words, I would have netted about $1.45 and $1.35 per hundred, in place of $1.35 and $1.25, figures being merely approximate. I do not, however, believe that the price of $3 per hundredweight this year could have been bettered by accompanying the car to San Francisco. and my opinion is this: When a good offer is made on the ground, take it; otherwise it is well to go with the car and sell it.

Small Lots—Low Prices

As an incident, it can be said that the day my potatoes were sold for $3 this season, local prices were $2.40 per hundredweight, partly because most of the potatoes were in small lots and partly because the quality as a whole was hardly up to par.

Last season was a funny season Government and newspapers cried aloud, "Plant potatoes." They got more potatoes than they needed and potato prices went away down, although, in spite of all that was said, they did not go down below the cost of production. They just stopped being sold, while the price kept fairly good, as is the case with beans this year. You can keep beans, but you cannot keep potatoes particularly well in this section, at least, and there were small growers here and there all over, tearing their hair on account of the potatoes they could not sell.

These potatoes could have been sold if they had reached the big markets in carload lots. and County Councils of Defense might have done a nice job in food conservation and helped the producers nicely at the same time if they had picked up all these small lots and auctioned them off in the city.

The storekeeper in a small community not far away told me that there were 400 sacks of potatoes in sold in that community and no market for them.

A potato grower along the river who is considerable of a trader, told me he bought from a Japanese in that community 150 sacks, I think it was, of potatoes, which he said were the nicest put-up potatoes he had

een that year. He paid $1.35 per ack, and sold them later at $2.50 per ack. This price of $1.35 was, for a while, the going price around here, a ood deal different from $3 per sack One orange grower planted a small acreage near here; had them ready to dig when the price was at about its worst, and to pass the worry over to someone else, offered them in the ground for 50 cents a sack, or some such price. Anyway, speak of potatoes for months afterwards and you would hear: "Oh, yes, D—— had some potatoes over there that were sold for 75 cents a sack."

How to Sell Potatoes

Now there is no ground for calamity howling on account of the conditions described, for nobody needs kicking as much as the nagging kicker. The great big, plain fact, as I saw it this last year, is this: The man who grows less than shipping quantities of potatoes will always find himself in a bad position when he tries to sell those potatoes.

He either should grow enough to make a carload or he should join in with others with small amounts to make a carload. If he would do either one he could get as much as a large grower; and if he does not sell that way he has only himself to thank for his troubles. Either he will find the dealers stocked up and not interested in buying, as was the case last season, or the buyers will be around picking up small lots at bargain prices simply because the small producer has no other way to sell.

State Commission Markets

This discussion is getting far too long already, but just one word of considerable importance on the matter. Growers of small lots were afraid to make up carloads and to ship to the big markets, for fear the commission men would send them nothing in return but a horse laugh. You can talk all you want about the great benefits of these large co-operative organizations, which, of course, are the greatest thing of the kind for the farmer ever developed, but State commission markets where the farmer could have shipped in stuff that last year he could not sell would have meant the saving of lots of worry and of thousands of dollars to small potato growers and the producers, and the saving of thousands of tons of perishable food that finally spoiled. The organization with State approval of great co-operative organizations is fine; but State commission markets that the farmers could feel that he could trust would be fine, too.

Making Old Trees Bear

HARD, impervious soil is the tree's greatest obstacle to maximum thriftiness.

Plowing the surface, between and around trees, helps some, but when a tree is eight or ten years of age or older its roots go down several feet. The plow cannot break up the hard subsoil and thus little or no relief is afforded the feeding roots by plowing. In fact, surface plowing encourages shallow rooting, which every horticulturist knows is bad for a tree.

The only practical remedy that has been found for hard soil is blasting with dynamite.

The blasting is quickly and easily done. Usually an inch and a half soil auger is employed to put down holes to a depth of about three to four feet. A quarter pound charge of a slow dynamite, five or six feet out from the trunk, is generally sufficient for a tree under five years old. For older trees, from two to six charges, placed at different points around the tree will be required. The proper method is to place the holes for the older trees at about the edge of the

Stark City Roots—Heavy, Wide-Spreading, Full of Vitality.

Plant Stark City Roots for Quality Fruits

Success with fruit growing is well started when you have chosen the best strains of fruits and when you have planted strong, sturdy trees, with healthy, vigorous root systems.

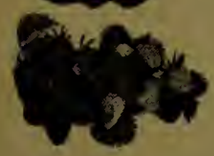
None but the best varieties of fruits are propagated at Stark City, and none but the best trees and plants that are grown here are offered for sale—the rest are burned. This assures you the highest grade nursery stock.

Read What Growers Say:

"All of your trees and vines are the best I ever planted."—John Rapelye, New York.

"My trees are making rapid growth, proving the result of setting your well-grown, well-rooted stock."—J. M. Carter, Texas.

"I have received nursery stock of various kinds from you and invariably found it well-rooted and EXTRA VIGOROUS GROWTH."—L. R. Johnson, Professor of Horticulture, Missouri.



Stark City trees are grown in an ideal climate and a rare soil of highland limestone and grit formation. These natural advantages, plus our scientific methods of propagation and training, produce trees with exceptionally heavy, wide-spreading roots, thick, strong bodies and well-formed tops. Such trees quickly establish themselves, when transplanted, make unusually rapid growth and reach the fruiting stage earlier than ordinary stock.

Stark City Trees Are Guaranteed

—to be true to name—to live and make satisfactory growth—to reach you in prime condition. This guarantee is the first-hand responsibility of this Nursery—we sell direct—no agents or other middlemen represent us. This also assures you getting the genuine, original Stark City Trees.

Get These Books

"Inside Facts on Profitable Fruit Growing"

A complete instruction book on successful fruit growing. Tells how to prepare the ground, plant, prune, spray, cultivate, etc. "Just the advice and information I've been hunting for but knew not where to find."—Ivan White, Kans.

"How to Beautify Your Home Grounds"

Shows how to lay out your home grounds, how to plant and care for ornamentals, etc. "While I received many more expensive books, yet none in which the subject is treated as interestingly and practically as you have done in your book."—W. S. Forbes, Mass. Each 10c, but sent free with orders.

Catalog FREE

It outlines the principles and methods of successful fruit growing. Describes and illustrates the best fruits—color, quality, ripening season, hardiness, growing habits. Tells which are best varieties for your section, planting distances, etc. Apples, pears, peaches, plums, quince, cherries, grapes, bush fruits, everbearing strawberries. Also choicest ornamental shrubs, roses, shade trees. Write, or mail this coupon.

To William P. Stark Nurseries, Box 72, Stark City, Mo.

Please send books as checked.

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"How to Beautify Your Home Grounds," (10c enclosed). [ ]

I am interested in planting:

Approximate number of .....trees. For Big Markets [ ]

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.....plants. For Home Use [ ]

Name .....

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(Give County and Street, or R. F. D. No.)

Wm P. Stark Nurseries Stark City Mo.

Address and name both the same.

Nitrate of Soda

California soils need available nitrogen. Get it as cheap as you can. Write us for "Cost of Available Nitrogen."

DR. WM. S. MYERS
Chilean Nitrate Committee
P.O. Box 248, Berkeley, Cal.

No matter what you have to sell, advertise it on the Farmers' Classified Market Place. Only 3c per word.

We Are Headquarters for Fruit Bearing Trees

We have an exceptionally fine stock this year—trees are thrifty and well-rooted—grown under ideal conditions.

Heed Your Country's Call and Make That Land of Yours Produce a Greater Revenue Per Acre.

Order Your Trees Early

The demand for trees this season is very strong. 1917 proved a wonderful year for the orchardist. California stands ready to do "her bit" when it comes to fruit production.

Get Our Catalogue Now

Every Horticulturist in the State should have our new book, which contains valuable information about fruit-bearing trees. It is quite different from the usual Nursery Catalog—sent free on request.

Fresno Nursery Co.
Address FRESNO, CAL.

After a Hard Day's Work—

WITH the chores done, the stock 'tended to, everything ship-shape and air-tight for the night—

It's pretty nice to settle down to supper with a steaming cup of Ghirardelli's at your elbow. Pretty nice and warm and comforting!

And in the morning—up early (what with help so scarce!) and a hundred and one things to do—it's right comforting to know that Ghirardelli's will be there at the breakfast table to greet you.

A delicious, sustaining food-beverage—drink it every day for health and economy.

In ½ lb., 1 lb. and 3 lb. cans; a tablespoonful—one cent's worth—makes a cup.

D. GHIRARDELLI CO.

Since 1852 San Francisco

Ghirardelli's Ground Chocolate

Western Woman

Edited by Ruth Roberts

Use More Raisins

HERE are a few ways of using raisins that not only make plain foods more tasty, but add nourishment and variety to many dishes:

In pie: Try a raisin pie some day. It is economical and nutritious.

In corn bread: Put a few raisins in the next corn bread that you make. A real treat is in store for you if you have not tried it.

In boiled rice: Raisins added to boiled rice make it a savory dish either as a dessert or a side dish for the main part of a meal.

In bread pudding: Bread pudding quickly wins converts when raisins are included. Stale bread used in puddings helps food conservation.

With stewed prunes: Learn how raisins stewed with the prunes improve this healthful food.

In oatmeal: Try raisins in the oatmeal. They supply additional energy and make less sugar necessary.

Carrot Marmalade

1 dozen raw, grated carrots.
1 cupful of sugar to each cupful of carrots.
Strained juice of 3 lemons.
1 teaspoonful of powdered cinnamon.
1 teaspoonful of powdered cloves.
1 teaspoonful of allspice.

Mix the grated carrots with the sugar and allow to stand over night. In the morning add the lemon juice and the spices. Cook slowly for one hour. If the spices are omitted it is as good as orange marmalade.

War-Time Corn Bread

1 cupful cornmeal.
1¼ teaspoonfuls of salt.
2 tablespoonfuls of flour.
1 tablespoonful of sugar.
3 teaspoonfuls of baking powder.
3 tablespoonfuls of shortening.
1 cup of water.

Use accurate level measurements. Mix dry ingredients. Add melted shortening. Then add water. Beat well and bake in a small, greased bread pan for 20 or 25 minutes. To make a lighter loaf slightly reduce the quantity of corn meal and add a like amount of flour.

Ginger Snaps

1 large cup of butter and lard mixed.
1 large cup of sugar.
1 large cup of molasses.
½ large cup of hot water.
1 teaspoon of soda in hot water.
1 teaspoon of ginger.
1 teaspoon of cloves.
1 teaspoon of cinnamon.

Mix stiff and roll thin.

Bean Chowder

1 pint of white beans.
½ pound of salt pork.
1 quart can of tomatoes.
¼ of a medium sized Spanish onion.
A little pepper.

Soak the beans over night; then in the morning parboil them, adding a pinch of baking soda. Then drain and add the pork and onions sliced thin. Cover with water and simmer for three hours; then add the tomatoes and pepper and salt if necessary. Simmer for one hour longer adding water to keep it the consistency of chowder.

Remove the pork (if desired) and serve very hot.

Washington Pie

1 cup of sugar.
Two-thirds cup sweet milk.
1½ cups of flour.
Butter (or substitute shortening) size of egg.
2 eggs.
2 teaspoons of baking powder.

Bake in two layers and put jam between.

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Order by Mail
Send for Price List

A Few of Our Specials

Fancy Eastern Bacon, guaranteed, per lb. 44c
Fancy Burbank Potatoes, we guarantee them, per 100 lbs. $2.25
Fancy Japan Rice, good and clean, per lb., 7c; 14 lbs. 1.00
Broken Coffee, try it, per lb., 20c; 5 lbs. 1.00
Macaroni or Spaghetti and assorted 20-lb. box $1.60
Good Cove Oysters, good grade, 2 cans, 18c; per doz 1.08
Crystal White Soap, per bar, 5c; 21 for 1.00
Carnation Milk, 6 cans 75c; per dozen $1.50
Royal Baking Powder, 1 lb. can ..... .39
Pure Cream Flake Rolled Oats, 15 lbs. $1.00
Long Grain Unpolished Rice, 5½ lbs., 50c; 11 lbs. $1.00
Try our Eastern Sugar Cured Picnic Hams, weight 6 to 8 lbs. each, per lb ..... .25
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Chocolate, Ghirardelli, 5-lb. can each 1.25
Codfish, best white and boneless, per lb. ..... .17

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STANDS HOT AND COLD WATER

THROUGH "STORY LAND"

Over the

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Through the orange groves of Southern California—up San Timeteo Canyon—through San Gorgonio Pass—near the foot of Mt. San Jacinto—through the Coachella Valley—skirting the Salton Sea—

Through Arizona and New Mexico—Texas with its Cotton Fields and Rice Plantations—The "Sugar Bowl" of Louisiana—The Bayou Teche, Quaint, Historic New Orleans.

AND THROUGH THE SOUTH—
"Dixieland" of Song and Story
Double Daily Service

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No extra fare—
Through tourist sleeper to Washington, D. C.

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SOUTHERN PACIFIC STEAMERS
Lv. New Orleans Wednesdays and Saturdays for New York. Fares same as all rail and include meals and berth on ship.

Southern Pacific

—See the Apache Trail of Arizona

A Message to Fruit and Vegetable Growers

THE A. A. A. EVAPORATOR MANUFACTURING COMPANY, 2371-73 MARKET STREET, SAN FRANCISCO, CAL., desires to get in touch with Fruit and Vegetable Growers in order to build one Modern Evaporating Plant on a Co-operative Basis in every district on the Coast. We are willing to invest a part of the capital necessary ourselves. If you have Fruit and Vegetables you cannot sell in the fresh state, come in with us and we will make money out of it for you as well as for ourselves. Your neighbors might be in the same boat, let us come together and talk the matter over. If you are in business to make money, write us for particulars, or, still better, come to our Office and Factory and we will show you our proposition.

FOOD

That is what we must have to win this war. There is no food surplus to carry ourselves and our allies through, if there is a crop shortage this year. Anything edible that we can produce is, therefore, worth far more to the world than it's market value would indicate. There may be plenty of gold but we cannot eat that. Every family should raise some poultry this year and plant a war garden.

Our New 1918 Catalog

will help you to get ready and is full of useful information. FREE.

Morris & Snow Seed Co.

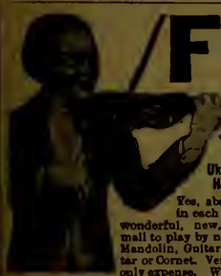
439 S. Main St., Los Angeles, Cal.

SEED CATALOG FOR 1918 FREE

We pay the freight, express or parcel post charges on all seeds at prices quoted in our catalog.

VALLEY SEED CO.

504-506 Jay St., Sacramento, Cal.



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Ukulele Guitar, Mandolin, Hawaiian Guitar or Cornet

Yes, absolutely free to first pupils in each locality. We have the most wonderful, new, system for learning by mail to play by note, Piano, Organ, Violin, Mandolin, Guitar, Ukulele, Hawaiian Guitar or Cornet. Very small charge for lessons only expense. We guarantee success or no charge. Complete outfit free. Write now. No obligations. Slingerland School of Music, Dept. 27, Chicago, Ill.

REDWOOD TANKS

A tank, 5x2, $9; a tank, 7.4x4, 1000 gal., $23; a tank, 8x5, 1500 gal., $31; a tank, 5x4, 500 gal., $18. Tanks in stock up to 10,000 gallons. Thirty-five years in this business in Stockton. Try my improved non-shrinkable tank. Reference, Farmers' and Merchants' Bank, Stockton. I cut out the agent. Phone 2957.
R. F. WILSON, STOCKTON, CAL.

Rheumatism

A Home Cure Given by One Who Had I

In the spring of 1893 I was attacked by Muscular and Inflammatory Rheumatism. I suffered as only those who have it know, for over three years. I tried remedy after remedy, and doctor after doctor, but such relief as I received was only temporary. Finally, I found a remedy that cured me completely, and it has never returned. I have given it to a number who were terribly afflicted and even bedridden with Rheumatism, and it effected a cure in every case.

I want every sufferer from any form of rheumatic trouble to try this marvelous healing power. Don't send a cent; simply mail your name and address and I will send it free to try. After you have used it and it has proven itself to be the long-looked-for means of curing your Rheumatism, you may send the price of it, one dollar, but understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer when positive relief is thus offered you free? Don't delay. Write today.

H. Jackson, No. 660D, Gurney Bldg., Syracuse, N. Y.

Mr. Jackson is responsible. Above statement

New Apple District

(Continued from Page 5)

"The Yucaipa Valley enjoys the distinction of never having experienced a crop failure. The Dunlap family, of which A. H. Dunlap, the well-known banker of Whittier, is a member, farmed 4000 acres in the valley from 1868 to 1906, and I quote from a letter from Mr. Dunlap as follows:

"'The valley has never, during our experience, failed of yielding good crops of hay and grain and vegetables. During the so-called "drouth years" of 1900, '01, '02 every district in Southern California except Yucaipa was practically barren, and during that period the Yucaipa farmers made greater profits than in normal years owing to increased prices.'

"With climate and water, Yucaipa would still be a failure with poor soil, but she has no poor soil. The upper benches, ranging from 2400 to 3500 feet altitude, are composed of thoroughly decomposed granite, with an abundance of humus, washed from the mountain sides. The soil is from ten to thirty feet deep, with never a trace of hardpan.

"For many years the valley was devoted to hay and grain, but it is now rapidly coming into its own as the home of the choicest varieties of winter apples, juicy mountain peaches, luscious Bartlett pears, wonderful red and black cherries, apricots, figs, grapes, olives and walnuts, and general farm crops such as potatoes, corn, beans and peas. The lower part of the valley has an alluvial soil, adapted for alfalfa and vegetables. Irrigation is furnished from flowing wells and springs, one of the latter flowing 90 inches in midsummer."

A Live Wire Editor

ONE of the best local papers that comes to the office of Orchard and Farm is the Byron Times, of which Harry Hammond is editor and proprietor. Hammond is a live wire. If there is anything of news value in Contra Costa County that escapes him the omission is not apparent, for his paper is brim full of interesting information about the doings of people in that part of California. Hammond devotes particular attention to farming interests. He features news events on his front page in a highly original way, running a red-letter initial at the top of each column to spell something to which he wishes to call particular attention. In other respects, as well, the Times is carefully edited and is a model country newspaper.

Corn and Rice Muffins

Pour two-thirds of a cupful of hot milk over one cupful of cooked rice and work with a fork to separate the grains. Add half a cupful of corn meal to the hot mixture, two tablespoons of bacon fat, half a teaspoonful of salt and one tablespoonful of brown sugar. Set aside to cool. When the mixture is cold, add half a cupful of flour and three teaspoons of baking powder; beat it thoroughly; bake in well greased muffin pans in a hot oven for twenty minutes.

Brown Betty

Make apple sauce with rich juice. Soak stale bread (about 3 cups of crumbs) in water. Line baking dish with layer of apple sauce using some juice. Squeeze bread dry and put layer over apple sauce. Then add sugar, cinnamon and nutmeg, a few pieces of butter and some raisins. Continue in layers until dish is full. Then scatter a few dry bread crumbs on top and bake.

Serve hot with hard sauce.

Anyway, cottontails can serve the nation better in rabbit pie than by gnawing fruit trees.

Before you build or remodel get this free book

It will give you many ideas that will enable you to plan the best possible arrangement of your plumbing fixtures.

'The Book of Bathrooms' shows how by the careful selection of plumbing fixtures, you can give your bathrooms a tone both artistic and refined.

It is a fifty-six page book illustrating model Pacific Coast bathrooms, some of the most recent **PACIFIC** Plumbing Fixtures, and containing many new and helpful ideas for the home builder.

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Pretty Costumes and House Dresses

Patterns From the Best Designers. Selected by Ruth Roberts.

1906—Girls' Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 1 yard of lining 36 inches wide for the underwaist, and 3¼ yards of material for the dress for an 8-year size. Price 10 cents.

2048—Ladies' Camisole. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires 1⅜ yards of 36-inch material for a 38-inch size. Price 10 cents.

2132—Ladies' "Cover All" Apron. Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. It requires 4⅞ yards of 36-inch material for a medium size. Price 10 cents.

2329—Ladies' Negligee. Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium requires 6¾ yards of 36-inch material. Price 10 cents.

2332—Girls' Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. Size 10 requires 4¼ yards of 44-inch material. Price 10 cents.

2338—Girls' Dress. Cut in 4 sizes: 2, 4, 6 and 8 years. Size 6 requires 3 yards of 36-inch material. Price 10 cents.

2344-2343—Ladies' Costume. Waist 2344 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 3¾ yards of 36-inch material. Skirt 2343 is cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. The skirt with tunic portions requires 4⅝ yards of 44-inch material for a 24-inch size. It measures about 1⅞ yards at the foot. TWO separate patterns, 10 cents FOR EACH pattern.

2345—Dress for Misses and Small Women. Cut in 3 sizes: 16, 18 and 20 years. Size 18 requires 7¼ yards of 36-inch material. The skirt measures about 2¼ yards at the foot. Price 10 cents.

2346—A Simple Set of Coat and Cap. Cut in 4 sizes: 6 months, 1, 2 and 4 years. Size 2 will require 3¾ yards of 27-inch material for the coat, and ¾ yard for the cap. Price 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date fall and winter 1917-1918 catalogue, containing 550 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker.

Use Coupon in Ordering Pattern

Herewith find.....cents, for which send me the following patterns:

Pattern No. ....Size.....

Pattern No. .....Size.....

Pattern No. ..... Size . ...

Be sure to give number and size. Send orders for patterns to ORCHARD AND FARM, "Examiner" Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below.

To make your grange meetings and farmers' institutes thoroughly patriotic, heat the hall with wood instead of coal.

Sugarless Fruit Cake

FRUIT cake can be patriotic cake. "But fruit cake is expensive," says the prudent housewife. That's just the point. To be patriotic a cake need not be expensive, but if she chooses an expensive recipe it can still be in line with national food needs. These recipes omit sugar, thereby releasing an important food of which both American and the Allies are in serious need.

Take half a pound each of nuts, dates, figs, raisins and citron. Put dates, figs and raisins through the food chopper. Grate in the yellow rind of one lemon. Then add the juice of the lemon and blend with a wooden spoon. Chop nuts fine. Cut citron into very fine strings. Pack closely into an oiled tin, alternating layers of fruit with nuts and citron. Press down closely, weight and leave at least twenty-four hours. Keep in closed cake box and slice as needed. Serve in small slices with a simple gelatine dessert.

This can be varied in many ways. Candied orange peel or grated cocoanut may be used in place of citron.

A Dahlia Potato

A. HICKMAN, an aged gardener of Eureka, Cal., has succeeded in crossing the familiar Irish potato with the dahlia, the combination producing a species of potato which is believed to be superior to that ordinarily on the market.

With the new potato one may have flowers for the decoration of his home and, when the plants have reached maturity, potatoes for his dinner.

Dogs may be friends of man, but sheep furnish clothing for his back.

ORCHARD and FARM

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Food for Fighters

SINCE the United States began to mobilize her armies for war millions upon millions of pounds of foodstuffs have been taken from California markets for soldiers on the Pacific Coast and soldiers in the East.

Major General Carroll A. Devol, depot quartermaster at Fort Mason, San Francisco, is at the head of a purchasing agency that supplies the subsistence for all posts and camps in the limits of the Department of the West, except Camp Lewis and Camp Kearny, and for Honolulu and Manila. Through the depot quartermaster, too, large quantities of California foods are inspected and shipped to Eastern depots. These tables will show the quantities of food purchased in California markets.

Supplies for Western Department contracted for in the last six months

*Flour	2,000,000	pounds
Rice	690,000	pounds
Potatoes	3,000,000	pounds
Tomatoes	8,000,000	cans
Prunes	2,500,000	pounds
Apples, evaporated	2,000,000	pounds
Apples, canned	250,000	cans
Peaches, evaporated	1,500,000	pounds
Peaches, canned	500,000	cans
Jam	2,000,000	cans
Sugar, beet	2,000,000	pounds
Apricots	192,000	cans
Asparagus	144,000	cans
Beans, stringless	75,000	cans
Cabbage	150,000	cans
Cherries	75,000	cans
*Corn, sweet	1,000,000	cans
Jelly	125,000	cans
Pears	100,000	cans

*Flour from Eastern and California wheat milled locally; corn from California and Northwest packed in California canneries.

Supplies purchased in California markets and inspected and shipped for other depots in the last ninety days

Rice	690,000	pounds
Tomatoes	1,154,496	cans
Prunes	5,227,550	pounds
Apples, evaporated	180,000	pounds
Apples, canned	31,488	cans
Peaches, evaporated	2,244,050	pounds
Peaches, canned	3,116,000	cans
Sugar, granulated	7,100,000	pounds
*Sugar, cane	300,000	pounds
Pears, canned	62,000	cans
Cherries	6,600	cans
Raisins	28,050	pounds
*Pineapples, end	[illegible]	cans
Cabbage, canned	[illegible]	cans
Corn, sweet	257,744	cans
Beans, stringless	7,100,000	cans
Beans, lima	2,100,000	pounds
*Salmon	2,938,500	cans
*Coffee, lima	545,000	pounds

*Pineapples and cane sugar from Hawaii; salmon from Alaska purchased locally; coffee purchased from local houses.

The purpose of the Central Powers strikes straight at the very heart of everything we believe in; their methods of warfare outrage every principle of humanity and of knightly honor; their intrigue has corrupted the very thought and spirit of many of our people; their sinister and secret diplomacy has sought to take our very territory away from us and disrupt the union of the States.—President Wilson.

MORSE'S Pasture Grasses

are just the thing for open seasons like this. Morse's Grasses do well on little moisture—are drought resistant—and make nutritive hay and forage. They put flesh on your stock quickly. This year, of all years, meat will mean money to you.

Plant Now

Brome Grass is particularly suited for dry hill sides. Australian Rye Grass and Orchard Grass thrive almost anywhere. All are heavy yielders. Write today for prices and planting directions.

Also—ask for your copy of *Morse's 1918 Garden Guide.* Tells all about the best vegetables for your winter and spring garden. A complete handbook of Morse's Seeds—garden, farm and flower. Send for it today—it's free.

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Ask your nurseryman for them.

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10 in. long, 7 in. wide	$10.00
12 in. long, 7 in. wide	11.00
14 in. long, 7 in. wide	12.00
16 in. long, 7 in. wide	13.50
18 in. long, 7 in. wide	15.00
24 in. long, 7 in. wide	18.00
30 in. long, 7 in. wide	21.00

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Success Stories

IN 1909 K. L. Manning bought fifteen acres of land east of Ontario, Cal., for $900, put up a tent house and went to work to make it pay. He was jeered for his optimism. He planted it to peaches. He had only a capital of $2400. This past year he sold to the co-operative cannery in Ontario fruit that has brought him $4165. He has taken off his peach trees in two years between $7200 and $7500.

Murray Tuller, near the same town, has gone in for several varieties of vegetables on his four-acre farm. He has grown onions principally and some corn and potatoes. He has kept his book accounts as carefully as a bank and he shows that during the twelve months ending October 1st he has received from his four acres $1380.38. Besides, his little farm has furnished lots of food for his family of four.

Money in Odd Crops

ONE would not think much of chile growing as a source of income for a family, but in Savannah, Los Angeles County, Harry Youngs is making an annual average of $270 from each of his six acres of peppers. He has been at it for five years. This past year has been his very best for profits. He means to go into pepper growing to the extent of ten acres next season.

This is an illustration of what may be done with odd crops in California, and here is another:

John Van Etten, a native of Holland, grows nothing but onion seed on his El Monte ten acres. He has been at it for eleven years and his accurately kept books show that he has sold, in five years, seed that has brought him annually from $8000 to $9000. He employs three men to help him in the season of the maturity of his seed and to pack and ship the seed to his Eastern customers.

Intercropping Success

I RAISED as an experiment, on a small patch of ground between the trees of the apple and Bartlett pear orchard that I am caring for, some Belgian white carrots, and the yield was at the rate of forty-two tons to the acre. Some of the carrots weighed 7 pounds. They are valuable for stock feeding and, in addition, make very good eating for human beings—a sort of a cross between the ordinary red carrot and the parsnip.

I experimented similarly with a small patch of Belgian brown onions this summer, and the yield averaged at the rate of twenty-one tons to the acre.

On a piece of ground very recently cultivated for garden purposes I raised Jerusalem artichokes, very fine for hog and stock raising, at the rate of 8 pounds to the hill, or 8 pounds to each plant, which at that rate would mean 38½ tons to the acre.

On a patch of alfalfa planted late last fall between apple and pear trees we raised four tons to the acre for the season, cutting six times. The yield will be nearly doubled in its second year.

A neighbor, Mr. Cardin, last fall turned under alfalfa stubble, and on three acres and a half of this ground raised 36 tons of fine potatoes.—Guy H. Whetstone, Victorville, Cal.

Every good brood sow should be kept on the farm and bred to produce a large thrifty litter of pigs.

18 Years Back of Hardie Sprayers

High Pressure, Light Weight, Large Capacity, Powerful Engine, Perfect Agitation, Simple Construction.

Hardie Power Sprayers are the final word in sprayers. They represent not only years of experience, but also an accurate knowledge of spraying needs and the conditions that govern spraying. Where spraying is most difficult you will find Hardie machines in the majority.

Hardie Sprayers are noted for their simplicity. No complicated devices to cause trouble when every spraying minute counts. You can put any of the help to work with a Hardie and get maximum results. Makes the work of spraying easier than ever before.

When you see a Hardie Sprayer you will readily understand its superiority. See how compact it is—the few working parts and how everyone of them is quickly accessible. There are 21 Hardie features that make it the leader among sprayers. The Hardie catalog tells all about them. A copy is yours for the asking. Send today. You can see a Hardie at your dealer's.

Hardie Orchard Gun $12.00

The latest Hardie device made to improve spraying conditions shoots a cloud of penetrating spray, covers the trees with a fog. Easy to handle. Takes a tiresome load off the arms and does the work in much less time. Fits any high-pressure sprayer and increases its efficiency.

Order a Hardie Orchard Gun from your dealer or direct from us. Money back if not satisfied.

The Hardie Manufacturing Co., Hudson, Mich.
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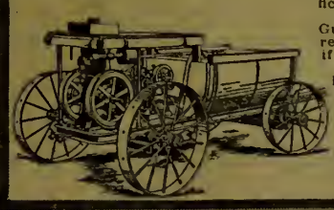

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5 Cents an Acre, Cash

Texas school lands for sale by the State at $2 an acre, 5c an acre cash, and no more for 40 years, but 3 per cent interest; send 6c postage for further information.

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POULTRY AND FRUIT RANCH, with or without equipment and stock, priced right, reasonable terms, and a money-making proposition; if you have $1000 or $2000 to invest, want a good home and paying business, near all conveniences, then writs me; no junk for sale and no shoe-string buyer wanted, but a live man for a live business. George Ellison, Campbell, Calif.

FOR SALE—ABOUT 200 ACRES near Healdsburg, Cal. 65 acres under cultivation, planted to prunes, pears, cherriss, grapes, mostly bearing. Hayland, pasture, plenty wood, live-stream. Well fenced buildings and fully equipped with everything. Beautiful place. Price is right. For particulars write Owner, Box 46, Healdsburg. No agents. No trade.

FOR SALE AT AN ATTRACTIVE PRICE, lot 45 ft. front by 145 ft. deep, on Telegraph Ave. near 20th St., Oakland, Calif. This is in the coming retail business center of Oakland and undoubtedly an investment which will prove very profitable to the buyer. Box 712, 520 Call Bldg., San Francisco.

FOR SALE—5 acres; bungalow, 9 rooms, city water, electric lights, barn, shsd; 150 orange trees, 35 pear, 3 lemon, 2 apple, 2 walnut, 2 quince, 15 young peach, 12 small figs; one block railroad station and packing house; three blocks to school; 1½ miles to city, Oroville. Cash, $3800. L. H. Auclair, Thermalito, Cal.

FOR SALE—40-acre peach orchard, six years old, 1366 Elbertas, 1300 Muirs, 1495 Lovells; good pumping plant; sulphur house, sheds, trays, picking boxes and sweat boxes. Price $15,000; near Fresno; poor health reason for selling. Easy terms. B. C. Palen, Box 186, Fresno, Cal.

FOR SALE—40 ACRES CHOICE foothill land, three miles from Exeter and Lindsay, close to new paved highway and new trolley. Suitable for oranges, olives, figs or grapes. $200 per acre. The Phalanx Company, 516 Chamber of Commerce, Los Angeles, Calif. A-5820. Main 1760.

FOR SALE—80 acres of fine improved land; shade trees; good house, barns and wells; all fenced; at Pleasant Grove; only 18 miles north of Sacramento; near two railroads. Snap at only $100 per acre. W. J. Trerette, General Delivery, Sacramento, Cal.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information address A. J. Smith, Groveland, Tuolumne County, California.

BUY, SELL OR TRADE farms, city property and merchandise stocks. Give full particulars and tell me what you have and what you want. D. J. Forbes, 153½ Grand Ave., Portland, Ore.

160 ACRES, $5.00 per acre, easy terms; rich silt soil; cotton, alfalfa, grain and fruit; well watered; Arizona; near railroad. Send 25c, full information. Wells, 1174 Phelan Bldg., San Francisco, Cal.

PRETTY 6-ROOM MODERN BUNGALOW, 1 ACRE choice bearing fruit trees, grapes, chicken house, etc. Value $3000; sell cheap, or part trade for poultry, livestock. Box 615, Inglewood, Cal.

10 ACRES ALMONDS, Peaches, Prunes, rich land, well improved, fully equipped, conveniently located. S. L. Wadlington, Route 1, Chico, Cal.

LEASE TERM OF YEARS, improvements as rent. Beautiful site for summer resort, Sonoma County. Address 2777 Pine St., San Francisco, Cal.

FORTY ACRES, ½ in alfalfa, good stand; good barn, etc. No house. Well located in Turlock district; $250 per acre. Easy terms. P. O. Box 175, Oakdale.

FOR SALE, AT A BARGAIN—6000 acres grazing land near Newman, Stanislaus County. Will sell all or part. Address Box 805, Orchard and Farm.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

FOR SALE, AT A BARGAIN—Two acres in Paso Robles. Four-room house on place. $1250, or four acres, $2100. Carl Storia, Paso Robles, California.

FREE LIST IMPROVED RANCHES, near San Francisco. Paul Rossier, owner, 613 Market st., San Francisco.

FOR SALE—Ten acres desirable cherry land and ¾-acre lot in Atascadero Colony, California. Carl Storia, Paso Robles, California.

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DOTY & PETERSON, Manteca, Cal.

FOR SALE—VINEYARD AND RANCH IN LOWER CALIFORNIA. 450 acres; 90,000 grapevines, full bearing, Zinfandel, Burgundy and Mission varieties. Rest of land used for farming. Winery with all necessary apparatus. Storage tanks for 75,000 gallons. Only winery on Pacific Coast of Mexico. High protective tariff. At present import duty on wines 90 cents U. S. per gallon. Will sell reasonable figure, part cash and balance in exchange for income property. Retiring from business. Address F. Andonaegui, Ensenada, Lower California.

EIGHT-ACRE SANVINA RANCH for sale, near Sebastopol, one-eighth of a mile from Petaluma and Santa Rosa electric R. R. shipping station; 4 acres in full bearing blackberries, 3 acres loganberries, 300 full bearing assorted fruit trees, 5-room house, good water, barn, 6 chicken houses, chickens, cow, 2 horses, 2 wagons; all in good condition; very reasonable. For particulars write owner, F. J. Bulla, Sebastopol, R. 3, Box 149.

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A PROSPEROUS FUTURE is ahead of the alfalfa raiser and now is the time to farm, for alfalfa in the field, $25, promises to reach record prices this year and to enjoy record prices for a long period. Our district is consistently alfalfa land, the greater part is covered with green irrigated fields, which produce as high as nine crops of hay. I have on hand a number of splendid alfalfa propositions, of moderate size, located in the silt artesian section of Madera County, the best part of the San Joaquin Valley, near towns, schools, S. P. and State highway. Richest silt loam soil, splendid and unlimited water, finest climate, makes profitable raising of many crops and fruits possible. My places are either fully improved, with buildings, pumping plants, growing crops, etc.; partly developed, leveled, ready for crop; or high class acreage, now in grain, ready for development. I will take as part payment on them other moderate sized pieces of property, preferably clear, and make terms on the balance that will be safe and sure. I deal direct and not as agent and will work in with your requirements if you state them. Arthur Vernon, Fresno, California.

TEN 640-ACRE HOMESTEADS; good grass, rich soil; water just discovered; good climate; near R. R. in California; location fee 50c per acre; filing fee $32. Send 25c for full information. Wells, 1174 Phelan Bldg., San Francisco.

431,000 ACRES—Fresno, Kern, Tulare, Inyo County sectional maps, $2.50 each, showing Sequoia National Forest openings. Good grass, timber and meadow land. Joseph Clark, Sacramento.

FARM LANDS skillfully experted, appraised for investment or mortgage; advice and help to buyers. Wooster Co., Phelan Bldg., San Francisco.

HOMESTEAD OR TIMBER CLAIM in Humboldt County; grand climate, water, soil; no peste or malaria; 80 to 640 acres. 1921 Sutter st., San Francisco.

FARMS WANTED

CASH BUYERS FOR GOOD RANCHES—We have cash buyers for good, improved ranches. If you are the owner of one and desire to sell at a fair price, then mail us full and complete particulars at once and state your lowest price. Also state in your letter that you will pay us the usual 5 per cent commission in the event we find a purchaser for your property.
PRESTON & LEE,
241 Montgomery st., San Francisco, Cal.

FARM OR RANCH WANTED, from owner only. Give full description and price. William Dunbar, Bound Brook, N. J.

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

WANTED—To hear from owner of good ranch for sale. State price, full particulars. D. F. Bush, Minneapolis, Minn.

FARMS FOR RENT—WANTED

WANTED TO LEASE RANCH IMPROVED for agriculture and good location for bee keeping. 2285 Jackson St., San Francisco.

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ANY AMOUNT ON COUNTRY PROPERTY. Bank rates. Write for particulars. We specialize on large country loans.
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OUR PRINTING Will Get Results for You—It will help to sell your goods and earn you profits. Send for samples and price list. G. C. Gallagher, 443 Sacramento St., San Francisco.

FIELD SEEDS, GARDEN STOCK

GIANT "MARROW" CABBAGES. Official yield was eighty edible tons per acre. Much hardier, richer than kale; it's stalk (trunk)—unlike kale's, being richest portion—entirely edible; it's "marrow," best egg and butter making "greens" known. (See full description in December issue). Only stock of it's guaranteed, pedigreed seeds (limited): Some plants ten feet high; 500 such seeds, 25c, five packets $1, twelve (acre supply), $2. Other garden rarities. Photos, suggestions, samples, for return postage. E. E. Martin, Guaranteeing Seedsman, B—4, Bangor, Washington.

FOR SALE—SEED CORN—I have two tons of very choice, hand-picked, white Texas June corn; selected this two tons from a crop of twelve tons. This corn produces two and frequently three large ears to stalk; will not sucker and is a wonderful drouth resister; satisfaction absolutely guaranteed, if given a fair trial. Price 100 pounds or over 7½c per pound; 50 pounds and up to 100, 10c per pound; under 50 pounds, 15c per pound, f. o. b. Venice. J. C. Perry, Venice, Cal. Box 216.

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The Burglar Who Forgot

By Isaac Anderson.

AFTER trying all the doors and windows on the ground floor and finding them securely locked Mr. William Staples, more familiarly known as Bill, climbed nimbly up one of the pillars that supported the front porch and entered the house through a second-story window, which had been carelessly left open.

The fact that it was not in his house did not disturb Bill in the least.

The night was dark and policemen were scarce in the suburb where he was operating, so there was very little danger of being caught. Besides, Bill was an old hand at burglary, and never expected danger until it came.

The window through which he had entered opened from a long corridor with doors on each side.

He tried the first door to the left, and finding it unlocked opened it softly.

A strong smell of gas came in through the opening, almost knocking the burglar off his feet.

"Hully gee!" said Bill under his breath, "Some jay must have blowed out the gas. He'll be a case for the coroner if I don't do something pretty quick."

And forgetting all about the plunder he had come to seek he rushed into the room, opened a window and groped about until he found the gas jet, which he made haste to turn off.

Although he was by this time almost overcome by gas, he managed to find the bed and carry its occupant out into the corridor, slamming the door of the room behind him as he went.

He had scarcely laid his inanimate burden down near the window when he heard a voice behind him say, coolly and deliberately:

"Hold up your hands or you are a dead man!"

Bill wheeled round quick as lightning to find himself face to face with an old gentleman in pajamas, who stood in an open doorway leveling a very business-like revolver at the intruder.

The hand that held the pistol was as steady as the voice that had called upon him to surrender, and the burglar lost no time in complying with the request.

"Well," said the old gentleman, "what have you got to say for yourself?"

"You'd better send for a doctor," said Bill, suddenly recovering his self-possession, "if you want to save the young lady's life."

"What are you talking about?" was the sharp rejoinder.

"This young lady here. I found her in that room with the gas turned on, and she may be dead now for all I know."

The old gentleman dropped his revolver and rushed to where the girl was lying.

"Get some water, quick?" he commanded, "in my room there."

Bill hastened to obey and dashed the water in the girl's face.

She gasped and soon began to recover consciousness.

By this time the whole household was alarmed. One of the servants was sent for a physician, another for restoratives and confusion reigned everywhere.

In the excitement the burglar was completely forgotten and might easily have made his escape. But such a thing never entered Bill's mind.

In fact he had forgotten that he was a burglar, so interested was he in the fate of the girl he had rescued.

As soon as his daughter was out of danger the old gentleman turned to her rescuer and said:

"Now, my friend, I would like a few words with you. While I feel that I owe you a debt of gratitude for saving my daughter's life, still I think I am entitled to an explanation as to your presence in my house at this time of night."

"I just happened to be passing by," said Bill, "and I smelled gas, so I thought I'd come in and see if I could be of any use."

This was rather a lame explanation, but there was no time to invent a better one.

"Ah, yes," remarked the old gentleman, "very kind of you, I'm sure. I presume you came in through the window instead of ringing the bell because you didn't want to disturb our slumbers. What's that sticking out of your coat pocket?"

"That's a screwdriver," said the burglar.

"Looks more like a jimmy," replied his cross-examiner.

"Some people call 'em that," admitted the owner of the implement.

"Do they, indeed? Well, of course it doesn't matter. 'A rose by any other name would smell as sweet. Have you ever been in jail?"

"No, sir; I never have."

"Never been caught, eh? How long have you been at this business?"

"About three years."

"Of course, you know that you will surely land in prison sooner or later if you keep at it?"

"Most of 'em do," said Bill, "and I suppose my time has come right now."

"That depends entirely upon yourself," returned the other. "I am willing to give you a chance to reform. How would you like to be night watchman in my store?"

"If it's all the same to you, sir," was Bill's reply. "I'd rather have some other kind of a job. You see, some of my old pals might try to break in there some night, and they know so much about me that I wouldn't dare arrest them."

"Very true," said the old gentleman, "I must find something else for you. Do you know anything about horses?"

"I was raised on a farm," said Bill.

"Very well, then; I shall let you drive one of my delivery wagons, and if you prove faithful I may find something better for you later on."

This was the beginning of Bill Staples' reformation. A decent regard for truth compels me to state that he did not marry his employer's daughter and become a member of the firm, as he should have done according to all the rules of romance. He did, however, marry the cook, who, like Desdemona, loved him for the perils he had passed.

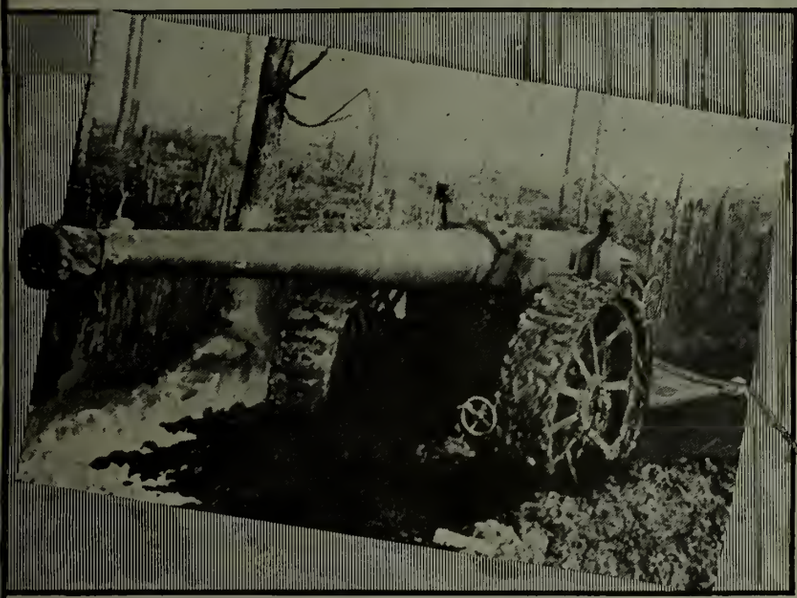
The only fault she finds with her husband is that he is so forgetful.

But when Bill reminds her that it was this very fault which led to his reformation, she has nothing more to say.

Last year Con C. Whitehill grew on his farm in Grant County, New Mexico, Indian corn seventy five bushels per acre. Some of the stalks were twelve feet tall. The farm is a homestead, recently patented, and lies five miles south of Silver City. The altitude is above 6000 feet.

A good dairy cow adds to the farmer's bank account and enriches the farm as well. A good cow, however, is one that returns to her owner a milk yield that is worth more than the food that she eats.

Stuck in the Mud! Pulled out with a K

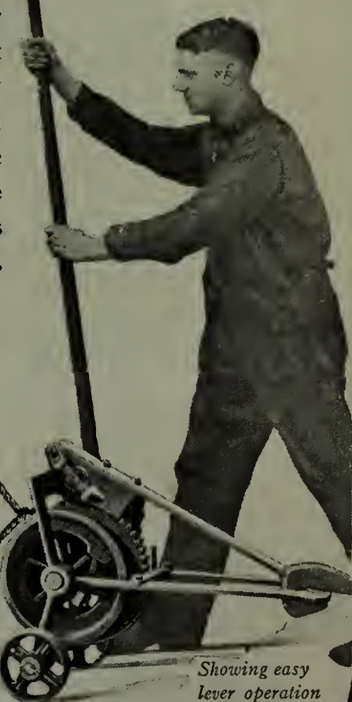


THE "K" **Hand Power** Stump Puller is now being used in France and Italy to move Big Guns into position on the battle line where it is impossible to use horses or other power.

The same giant force which in times of peace has been utilized to pull big stumps and trees is now being employed in pulling around heavy guns, weighing 40 tons or more.

The above facts are merely given to illustrate to you the tremendous power exerted and that 100 lbs. pull on the lever of the "K" **Hand Power** Stump Puller will exert a 48-ton pull on any stump—all that an inch steel cable will hold. **One man operates it alone.**

The Republic of France has bought eight and the Italian government four "K" Hand Power Stump Pullers to pull big guns out of the mud.



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Have you noticed that, though some men you know of turn every hour and minute into profit, *your* work goes slow, *your* time is spent in fretting against delays—and that you are getting into the habit of letting many a good chance pass because you "wouldn't be able to get there in time?"

* * *

Have you noticed that your family—your girls, your boys, your wife—are steadily, steadily getting out of touch with those they ought to know? Have you realized that the families which surround you—automobile families—have a circle of friends and interests, and a radius of easy visits, far larger than your family? Open your eyes.

Have you noticed how many times you and your family have been placed under obligation by neighbors who have cars? Aren't you tired of asking favors?

* * *

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And of all motor cars of equal service the one that costs least to run and least to own is the Maxwell.

Investigate this while these cars of greatest efficiency are still procurable. Write us a letter today.

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ORCHARD and FARM

ESTABLISHED 1888

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ORCHARD and FARM

Vol. XXX. LOS ANGELES, CALIFORNIA, MARCH, 1918. No. 3.

For a Farm Labor Draft

Leading Men Who Favor the Plan

WITHIN a week after our Government outlined its policy to draft men for the war with Germany, the editor of Orchard and Farm wrote these words, which were widely published and republished:

"If it is the right and the duty of the United States Government to draft men and send them to France to be shot at, then it is its right and duty to draft men to feed them."

Orchard and Farm began last summer to urge the conscription of farm labor. At that time the movement was not very popular. Today, if you go out upon the Coast ranches you will hear a great deal about it. True, there are some of the larger orchardists and farmers who say they are in favor of importing Chinese labor, but the great majority do not want to stir up class disorder, and all of them are free to admit that one white laborer is able to do the work of two or three Orientals.

What Boys Did

The most plausible argument against a labor draft is that it would take time to train men for such work, but green high school boys who went out last fall to the ranches rendered invaluable assistance in crop gathering. A short period of training is all that would be necessary for any able man to learn how to cultivate a field or harvest a crop from it.

Farm labor conditions are getting worse every day. Unless we can enlist men to help the ranchers—an idea that could not possibly be carried out—we must draft them.

Among other prominent men who have come out strongly in favor of the farm labor draft is Mayor Woodman of Los Angeles, who declared recently:

"There ought not to be an idle person in city, State or nation, rich or poor. And there will not be if the Government institutes a labor draft. It is neither fair nor right, in these war times, to stand around and do nothing, whether you be rich or poor."

Supported by Congressmen

Senator George W. Norris of Nebraska has come out flat-footedly in favor of the labor draft. He says in the Farm Journal, which has lately begun to advocate the plan:

"We must have soldiers on the farm as well as in the battlefield. . . . If they are conscripted they should be detailed to work in the fields."

Congressmen A. W. Overmyer of Ohio and Congressman Dudley Doolittle of Kansas are also out for the labor draft.

Senator Hiram W. Johnson of California, in reply to a letter written to him by the editor of Orchard and Farm asking him what he thought of a labor draft as against Chinese importation, says:

"I shall be very glad to do whatever I can to avoid any difficulties that may arise in the farm labor situation, as you suggest."

Constructively this means that Senator Johnson favors the idea of soldiers of the farm, for that was the only thing suggested by this correspondent.

C. B. Sexton, superintendent of the California Public Employment Bureau, said in reply to a question from Orchard and Farm:

"I am in favor of the draft idea for farm labor. You will not be able to get enough, nor half enough, men to meet the present emergency in any other way."

Of course, no farmer likes to break in green help, particularly from the city.

Many of the raw Celestials, however, would have to be broken in, so what's the odds?

Here's what the Grangers think of Chinese labor:

Recently a vote was polled in all the Granges in California. So far as reported, 21 of them were against Mongolian importation. Only nine were in favor of it, and those not very strongly.

So let's gather up all of the poolroom loafers, all the ablebodied supporters of store fronts, all the strong-muscled patrons of nickelodeons, and instead of letting them enjoy their favorite pastime of wolfing food from free-lunch counters, set them to work to producing food for our hungry allies and our soldier boys in France.

Also let us gather up all the self-respecting young men who are out of work and who, though not of draft age or qualifications, are able to lend a hand in this urgent emergency.

Read what Governor Stephens says on this page as to the duties of the farmer. He declares that we must surpass the record of 1917. By all means, let's do it!

Big State Land Project

Site Is Selected in Sacramento Valley.

BY an expenditure of about $500,000 the State of California is about to make a great land demonstration on the Australian plan. It was this project for which Dr. Elwood Mead worked so nobly, backed by Orchard and Farm and the San Francisco Examiner. At its last session the State Legislature passed an act by which the demonstration was made possible. This, however, was not done without considerable argument and pressure by Dr. Mead and others who saw the tremendous advantages of the plan.

In addressing himself to some of the luke warm legislators the editor of Orchard and Farm said:

"Many appeals have been made by prominent reformers in support of the measure by which it is proposed that the State shall acquire 10,000 acres of arable land and make a demonstration of the Australian system of closer colonization.

"One reason why I am in favor of the measure is that all the old standpatters, all the laissez-faire reactionaries, all those whose favorite words for any sort of reform are 'visionary' and 'utopian,' are strongly opposed to it; and this, I am sure, in itself ought to turn the balance in favor of the bill in a legislative body so liberal and so progressive as yours."

It did turn the balance.

The act was passed.

And now the site for the first unit of the great agrarian project has been selected near Chico, in the Sacramento Valley.

It is a good site—none better.

The tract includes over 4000 acres of the choicest part of the

Continued on Page 29.

A Magnificent Opportunity for Young Farmers on California's New Demonstration Tract Near Chico, Butte County.

To Orchard and Farm Readers

BY WILLIAM D. STEPHENS,

Governor of California.

I GLADLY avail myself of the opportunity to express, through Orchard and Farm, my appreciation of the wonderful service the farmers have performed for the State and nation in their noble response to the appeal of the national government for greater crop production and, also, to encourage them in their efforts to continue their great service to the country.

In relation to and in comparison with other States California occupies a peculiarly proud position. As shown by the records of the past year, this State produced in 1917 larger percentages of many leading food products than any other State in the Union. Its production of 51 per cent, or over half, of the nation's bean crop was a particularly valuable contribution to the supply of war food. Its production of barley, 20 per cent, or one-fifth of the whole, was also important, and so was its sugar beet production, 22 per cent of that of the nation.

I wish to congratulate the fruit growers upon the results of their enterprise and labor. A comparison of California's yield of fruits and nuts with that of the entire United States shows that in several leading crops this State produced in 1917 over nine-tenths of the total yield reported for the whole country.

It is significant that such new crops as rice and cotton were grown here last year in considerable quantities, and it is to be hoped that their production will be greatly augmented this year.

In fact, while the record for California for 1917 was so good that we shall find it difficult to surpass it in 1918, surpass it we must, for there is only one place for California and that is in the front rank.

It is for the farmer to determine, in large measure, whether or not we shall win the war.

San Jacinto Valley Thrift

By W. H. Jackson.

A MIDDLE WESTERN farmer who is thinking of coming out to the coast and settling down is not the kind of man to be drawn by glittering generalities. He doesn't want to know that California has produced so many millions of bushels of barley or boxes of oranges. What he wants to know is, what can I produce and make good money in?

That is the reason why the very straight and convincing reports that have gone out from the San Jacinto Valley, in Southern California, as to definite yields of certain crops have captured the interest and the imagination of so many of the farming folk in Iowa and Illinois. When they see facts and figures showing that in one season an orchardist has made enough money from intercrops to make the payments on his land, they say, "Show me to it."

And they are being shown to it, and they are settling down there about as rapidly as anywhere else in the State.

Abundant Yields

Yes, there has been a big influx of colonists into the San Jacinto, particularly around Hemet, where the apricot and peach tree flourish and thrive in the rich warm soil, which yields abundant crops.

Take one large tract for example. Four years ago it was a barley field—a great, green, spreading mass of vegetation, with hardly a house in sight. Today there are on that ranch over 90,000 fruit trees, and the 70 families that have come in and settled down there are among the most prosperous in California.

Orchardists' Advantages

Most of the fruit ranches are in ten and twenty-acre tracts. The people who have gone there to live are thrifty and industrious and they have an eye for the real things of life. They have good schools, a church, a chamber of commerce to look out for their selling interests and a farm adviser.

Norman Walker has fifty acres in the valley. His sister also has fifty and his father thirty. Walker's land is planted to apricots, alfalfa and grain. Here is what Walker says:

"I like this country so well that I am going to try and induce all my relatives to come and locate here. I have already induced one of my brothers from the East to buy 80 acres. The soil, water and climatic conditions are all that a farmer could desire. We are rapidly getting a large colony of Orange county ranchers here, and that looks like good evidence of what this country has to offer."

The Co-Operative Feature

There are a lot of other people down that way that think the same as Walker. One reason why they think so is that they can sell many of their products before they begin to plant. In other words, they can make advance contracts with purchasers at fair prices, so they should worry.

Walker and his neighbors are on fine, rich land, about 1500 feet above the sea—an ideal altitude for apricot growing. They have electricity, for light and power, they have a cannery and a pickling plant within handy distance, and, what is better than all, they have a fine community spirit—everybody working with his neighbor for his own and the general welfare.

Prosperous—why? Because they have had everything at hand to make them so. True, they have had to wait for their peach and apricot trees to grow, but in the meantime they have planted and harvested big crops of vegetables, potatoes, tomatoes, blackeyed beans, onions and what-not, and they can keep on doing so until the trees come into full bearing.

So waiting doesn't mean anything to these orchardists. They are getting rich while they wait.

Of course these are isolated instances. Some are doing it, others are not, but most of them are doing well.

One Crop Pays for Land

Now about that story of a new settler paying for his land out of the first year's crop. Reads a little like good old Baron Munchausen or Thomas W. Lawson, doesn't it? But it's true all the same and it's due to the splendid fertility of the soil. Also, bear in mind the fact that San Jacinto Valley is right next door to Los Angeles and other big market places. They have a railroad that runs right into the valley and hauls out lots of stuff. Last year that line hauled out one

(Continued on Page 32)

Tractor in the Orchard

By Burton Hale.

TO try to establish any set rule for tractor plowing in orchards would not be advisable from Orchard and Farm's point of view. Conditions in its territory, which extends from Mexico to the Yukon and from the Pacific to the Rockies, vary greatly. In the sections where there is heavy rainfall there is often a sod growth to deal with in the spring, but in California, as a rule, little of any kind of vegetable growth save cover crops is permitted in the orchard save where the young trees admit of intercropping. Experiments have shown, however, that shallow plowing in old orchards pays. The time of the year to plow depends somewhat on the condition of the orchard. If there is a great deal of vegetable matter and heavy sod, it is desirable to plow in the fall. If, on the other hand, the sod is not very heavy, it is really desirable to plow in the spring. It is sometimes advisable not to plow on slopes where the soil is apt to wash badly.

Often it is not necessary to plow at all. The soil may be in such condition that a disc or spring-tooth harrow could be used to better advantage than a plow. By their use the sod can be cut up and the soil worked down fine and even.

Tests made at experiment stations from California to Maine show that the poorest way to handle an orchard is with a sod mulch. The most profitable method of caring for the orchard has been a combination of cultivation and the growing of cover crops.

What the Tests Show

According to Bulletin 30 of Cornell University, there was an average difference of $30.45 per acre in favor of tilled orchards over a four-year period as compared with the same kind of orchards that were down in sod.

The fertility of the soil can be maintained by applying manure or commercial fertilizers or by growing legume crops. The latter usually is the cheapest way. Perhaps the most generally used non-leguminous crop is rye. It grows very well on nearly all kinds of soil but does not add fertility. Buckwheat has been grown with some success in northern climates.

Among the satisfactory leguminous crops are red clover, cow peas, in some places alfalfa, sweet clover, etc.

As a general rule, it is best to plow orchards shallow. This is especially true if the orchard is old and has been in sod for some time. Shallow plowing will not injure the feeding roots to any great extent. If the orchard has not been plowed for some time, the question may arise whether more injury will be done by cutting some of the roots than the benefit derived from plowing.

Experience shows that it pays to cultivate the orchard. The next consideration would be what kind of power to use. According to the Oregon Experiment Station, Bulletin 132, the use of the tractor in orchard cultivation will warrant close investigation and study. There is no question but that the tractor should be able to do the orchard tillage operations much cheaper than horses.

Farmers in all sections of the country are finding that the tractor is very satisfactory for orchard work. Walter Beistle of San Jose, Cal., says: "I have earned $325.35 in cash with my tractor, besides doing my own work in my orchard."

Not long ago Orchard and Farm told the story of how a Florida man had rigged up a cultivator attachment for his tractor by which he could cultivate 100 acres a day. California farmers have made other devices almost as effective. Orchard cultivation with a tractor offers a wide range of study and practice.

Quick and Easy Cultivation of an Orchard

Water and Plenty of It for the Apricot Lands of San Jacinto Valley

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Under new food regulations, the Swiss people are allowed only a pound of sugar per month per person. The butter ration is one-fifth of a pound per month

Using Potatoes for Feed

By Randall Merritt.

PACIFIC COAST livestock men should use potatoes for feed wherever practicable. This is according to the advice of the Government, and it is, in many cases, good advice.

For generations Denmark, the home of efficient bacon production, has made large use of potatoes, and shown us the way to use this feed to our great advantage.

A way to keep potatoes over the year has stood in the way of developing this valuable feed. Dr. Round of the United States Department of Agriculture has worked out the method of preserving potatoes in the form of silage. This discovery is of tremendous importance, for it will stock-up northern farms and steady the marketing of the potato crop.

Under normal conditions 10 to 12 million bushels of potatoes are lost by rotting, and in exceptional years this amount easily may reach 50,000,000 bushels. This year large quantities of potatoes were frozen in the ground; facilities for making potato ensilage would prevent large losses at this time.

The successful making of potato ensilage hinges on the use of an organism of microscopic size known as the lactic acid organism. Cleaned, ground potatoes inoculated with this organism furnish a sure means of saving the potato and producing a palatable nutritive ensilage which may be fed to the hogs and cattle to advantage.

Preparing the Acid Organism

The lactic acid organism is prepared by fermenting corn meal.

If equal parts by weight of corn meal and water at 100 degrees are thoroughly mixed and then packed and tamped into a perfectly clean, water-tight receptacle, such as a glass jar, crock or barrel, and set in a warm place, in forty-eight hours the corn meal will have undergone a lactic acid fermentation and will contain enormous numbers of lactic acid organisms in practically pure culture. The surface of this meal, after it is tamped into the water-tight receptacle, should be covered as tightly as possible with boards and a wet cloth —both absolutely clean—in order to keep away as much of the air as possible. This type of starter should be used as soon as it becomes sour to the taste. If kept at a temperature between 80 and 90 degrees it is ready for use in about two or three days.

Potato Ensilage

Dr. Round says of his recent discoveries:

"In our work the potatoes after grinding are put immediately into water-tight receptacles, such as barrels, tanks or large vats, along with about 2 per cent of corn meal sprinkled in among the ground potatoes. The mixture is then tamped down, covered to a depth of several inches with straw, cornstalks or leaves, and then fitted with a board cover, which is weighted down with stones.

"In our work, in which the covering is adjusted in this manner, there is no loss whatever of the fermented potatoes. Fermentation begins at once and if the weather is warm, gas bubbles appear within 24 hours and for some days considerable pressure is developed, which necessitates the addition of heavy weights to hold the potatoes down.

"After a few days the gas formation slows down and the mass settles somewhat, but the fermentation is not complete until the end of the third week or longer, depending on the temperature. In warm weather the fermentation is complete in ten days.

Dr. Round's Findings

"The use of 2 per cent to 5 per cent of corn meal mixed with crushed potatoes results in acid fermentation which converts the potatoes into

"This work may be done upon any scale. If reasonable care is used, losses should be negligible.

"The potatoes should first be washed, and then crushed by passing them through an apple grater which has been modified by substituting rows of blunt spikes for the grater knives.

"The fermentation requires a tight receptacle, which may be a barrel, a vat, a pit, or a silo, but must retain the potato juice.

"The upper surface of the crushed potato should first be covered to a depth of several inches with an absorbent fibrous substance, such as straw, cornstalks, or leaves, then closely fitted with a wooden cover weighted down by stones until the surface of the potatoes is barely covered by juice. The top of the straw and of the board cover should be kept dry.

"Fermentation begins at once. With the evolution of gas, considerable pressure develops which should be controlled by extra weights. After a few days this pressure disappears. Acid fermentation continues, however, for two or three weeks.

"The resulting potato silage is refreshingly acid in flavor, free from any putrid odors, and of about the consistency and appearance of the original crushed potato.

"Potato silage is eaten freely by cattle and somewhat less readily at first by hogs, although they soon learn to eat it."

Feeding Raw Not Successful

Feeding raw, unprepared potatoes to pigs or other livestock is, as a rule, not very successful. This fact is due to the large amount of unconverted starch contained in that vegetable. The starch, as in the human diet, is not so digestible in the raw state, and must be either thoroughly cooked or treated in some such manner as that suggested by Dr. Round.

Some Spuds! Grown in Los Angeles County, Cal.

Dollar Hen in War Time

By Burton Hale.

TO GET such a start in the poultry game as to be able in three years to command a net income of $7500 a year from laying hens, in these days of high-priced feed, and to keep pegging away good and strong while other poultrymen are merely marking time, is a pretty good record for a man who did not pretend to know much about poultry up to a few years ago.

M. B. Newman, a merchant tailor of Hollywood, Cal., formerly of Cleveland, O., went out to Lankershim, Cal., in the sunny San Fernando Valley, three years ago and bought eight acres of land.

On four of these acres he has established a fine home and several first-class hen houses and yards, together with a large incubating plant, granaries and other outbuildings, and on the other four acres he raises alfalfa for green feed for his hens.

Last year Mr. Newman hatched 12,500 baby chicks for his own use. From his brooder house he took about 7500 chicks at a time for every three weeks during the brooding season, which is from January to May, and of these he sold many thousands.

He sold 5000 cockerels for broilers and about 3000 pullets. He kept 4000 hens and had in December last month 7500 laying hens, including hold-overs, and has averaged about that many through the past year. These hens net him $7500 a year, or $1 apiece.

Electricity Helps

Electric lighting in the henneries has greatly aided in bringing about this result. It has been a success here as elsewhere.

You hear a good deal in prosperous times about the dollar hen, but of late you have heard very little for the simple reason that in most poultry plants there ain't no such animal. Feed costs many of the poultrymen nearly twice as much as formerly, but this is because they do not buy it by the carload right after harvest time, as Mr. Newman does.

Go to the Newman ranch today and you will see in the big granaries stacks and stacks of barley, wheat, oats, Egyptian corn and mash, as well as more sacks of charcoal and shells, an indispensable feature of hen diet.

"You can't economize on the feeding of chickens," declared Mr. Newman to me when I visited the ranch. "Nor can you economize on help. I keep five men busy all the time. Poultry need a lot of care and the houses must be kept in a sanitary condition.

"All of the feeding vessels and watering vessels in my hen houses are washed clean every day, and beside the best of feed, the chickens are supplied with pure running water, which drips constantly from the faucets all the while that they are awake.

"It is expensive, of course, to keep so much help, for I pay them $2 a day up, but it's a profitable investment. The hens get better care and thrive better.

Lighting Is Profitable

"Electric lighting of the henneries helps. It gets the hens up earlier, particularly in the winter and of course they eat more and lay better.

"People who go into the chicken business thinking they can make money by starving their hens along will go broke every time. Another thing—you must get the right breeds. I have tried Rhode Island Reds, Plymouth Rocks and Brown Leghorns, but have settled down to White Leghorns as the best because they are the most active.

"A lazy hen will be a lousy hen, and if she does not earn her board her head should come off. I cull my layers out very carefully and in this way keep up my stock to its highest efficiency."

Mr. Newman showed me his main granary and his smaller ones. In one of these buildings were 22 tons of mash for which he had paid $90 a ton. He buys barley by the carload.

In one bin was a large quantity of barley that had been wet for sprouting. Sprouted barley is one of the most nutritious and digestible of feeds.

Built into each of the long hen houses, near its center is a fireproof granary from which the feed is taken in push carts. All the houses are cement floored and there are stores of sawdust and shavings that are used in the nests. The floors of the henneries are covered with wheat straw, bought in large quantities, and of this the hens are given a plentiful supply. In fact there's no stinting anywhere about the place,

Plenty to Eat

The day's program on the Newman poultry ranch in winter is as follows:

4 a. m.—Electric lights are turned on automatically in all the hen houses, and the hens begin to stir and scratch in the straw. Some of them go to their nests and begin to lay.

5:30 a. m.—All watering and feeding vessels are washed perfectly clean by the men.

6 a. m.—Dry grain, mixed barley, Egyptian corn, oats and wheat are fed.

10 a. m.—Green feed is given.

11 a. m.—Wet mash is fed.

1 p. m.—A luncheon of sprouted barley.

4 p. m.—Dry grain again.

Mr. Newman says the cart system of handling the feed cannot be beaten.

Some of the henneries are of immense size. One of them is 330 feet long and accommodates 2500 hens.

When to Plant Vegetables in Garden and Field

A Calendar That Will Be Useful to Farmer and Gardener

THE following is a calendar for the general planting of vegetables, but, owing to the various soils and climatic conditions, it cannot be applied to every locality, even in California, for which it is intended. The calendar was compiled by H. L. Musser of Aggeler & Musser, the California seed men.

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Asparagus	‡Asparagus	Artichoke	Artichoke (Seed)	Artichoke (Seed)	Artichoke (Seed)
*Beans	Beets	Asparagus	Asparagus	Asparagus (Seed)	Beets
Beets	*Beans	Beets	Beets	Beets	Beans
Brussels Sprouts	Cabbage	Beans	Beans	Beans	Cabbage
Cabbage	Carrots	Cabbage	Carrots	Cabbage	Carrots
Carrots	Celery	Corn (Sweet and Field)	Cabbage	Carrots	Celery (Plants)
Chicory	Corn	Cucumbers	‡Celery	Celery (Plants)	Corn (Sweet and Field)
Corn Salad	Cress	‡Egg Plant	Corn (Sweet and Field)	Corn (Sweet and Field)	Cucumber
Cress	Corn Salad	Kale	Cress	Cucumber	‡Egg Plant
†Egg Plant	*Cucumbers	Lettuce	Cucumber	‡Egg Plant	Lettuce
Horse Radish	†Egg Plant	Melons (Musk and Water)	‡Egg Plant	Lettuce	Melons (Musk & Water & Casabas)
Kale	Horse Radish	‡Onion	Kale	Melons (Musk & Water & Casabas)	Parsley
Kohl Rabi	Kale	Parsley	Lettuce	‡Onion	Parsnip
Lettuce	Kohl Rabi	Parsnip	Melons (Musk & Water & Casabas)	Parsley	§Peas
Mustard	Lettuce	Potatoes (Sweet)	‡Onion	Parsnip	Pepper (Plants)
‡Onion	‡Onion	†Potatoes	Parsley	§Peas	Potatoes
Parsley	Parsnip	Pumpkin	§Peas	‡Peppers	Potatoes, Sweet (Plants)
Peas	Peas	Radish	‡Peppers	Pumpkin	Pumpkin
†Peppers	†Peppers	Rhubarb (Seed)	Parsnip	Radish	Radish
*Potatoes	Potatoes	Spinach (Summer)	Potatoes (Sweet)	Rhubarb (Seed)	Spinach (Summer)
Radish	†Sweet Potatoes	Squash	†Potatoes	Spinach (Summer)	‡Tomato
Rhubarb	*Squash	‡Tomato	Pumpkin	Squash	
Spinach (Winter)	Radish		Radish	‡Tomato	
†Tomato	‡Rhubarb		Rhubarb (Seed)		
Turnip	Spinach (Summer)		Spinach (Summer)		
	†Tomato		Squash		
	Turnip		‡Tomato		

JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Beets	Artichoke (Seed)	Artichoke	Beets	Beets	Artichoke (Plants)
Beans	Beets	Beets	*Beans	*Beans	Asparagus (Roots)
Cabbage	Beans (Early Varieties)	*Beans	Brussels Sprouts	Brussels Sprouts	Beets
Carrots	Brussels Sprouts	Brussels Sprouts	Cabbage	Cabbage	*Beans
Cauliflower	Cabbage	Cabbage	Carrots	Carrots	Brussels Sprouts
Corn (Field)	Cauliflower	Carrots	Cauliflower	Cauliflower	Cabbage
Cucumbers	Carrots	Cauliflower	Cress	Cress	Cauliflower
*Egg Plant	Cress	Cress	*Egg Plant	Kale	Cress
Kale	Cucumber	*Cucumber	Kale	Kohl Rabi	Horse Radish
Kohl Rabi	*Egg Plant	*Egg Plant	Kohl Rabi	Lettuce	Kale
Leek	Kale	Kale	Lettuce	Onion	Kohl Rabi
Lettuce	Kohl Rabi	Kohl Rabi	‡Onion	Parsley	Lettuce
Melons (Casabas)	Lettuce	Lettuce	Parsley	*Peas	‡Onion
Onion Sets	‡Onion	‡Onion	Parsnip	Radish	Parsley
Parlsey	Parsley	Parsley	Peas	Spinach (Winter)	Parsnip
Parsnip	Parsnip	Parsnip	Radish	Turnip	Peas
§Peas	Peas	Peas	Spinach		*Potatoes
*Peppers	*Pepper	*Peppers	Turnip		Radish
Potatoes	Potatoes	Potatoes			Rhubarb (Roots)
Pumpkin	Radish	Radish			Spinach (Winter)
Radish	Spinach (Summer)	Spinach (Winter)			Turnip
Spinach (Summer)	*Tomatoes	*Squash			
Squash	Turnip	*Tomato			
*Tomato		Turnip			

*Plant in frostless sections only. †Plant seed in hot bed. ‡Plant both seed and plants. §Plant in low, heavy land.

NUMBER OF PLANTS TO AN ACRE

Set at Regular Distances Apart.

Distance apart.	No. plants.
3 in. by 4 in.	622,720
4 in. by 4 in.	392,040
6 in. by 6 in.	174,240
1 ft. by 1 ft.	43,560
1½ ft. by 1½ ft.	19,360
2 ft. by 1 ft.	21,780
2 ft. by 2 ft.	10,890
2½ ft. by 2½ ft.	6,960
3 ft. by 1 ft.	14,520
3 ft by 2 ft.	7,260
3 ft. by 3 ft.	4,840
3½ ft. by 3½ ft.	3,555
4 ft. by 1 ft.	10,890
4 ft. by 2 ft.	5,630
4 ft. by 4 ft.	2,722

Distance apart.	No. plants.
4½ ft. by 4½ ft.	2,150
5 ft. by 1 ft.	8,712
5 ft. by 2 ft.	4,356
5 ft. by 3 ft.	3,904
5 ft. by 4 ft.	2,178
5 ft. by 5 ft.	1,742
5½ ft. by 6½ ft.	1,440
6 ft. by 6 ft.	1,200
6½ ft. by 6½ ft.	1,031
7 ft. by 7 ft.	888
8 ft. by 8 ft.	680
9 ft. by 9 ft.	537
10 ft. by 10 ft.	435
11 ft. by 11 ft.	360
12 ft. by 12 ft.	302

Distance apart.	No. plants.
14 ft. by 14 ft.	2.2
15 ft. by 15 ft.	193
16 ft. by 16 ft.	170
16½ ft. by 16½ ft.	160
17 ft. by 17 ft.	160
18 ft. by 18 ft.	134
19 ft. by 19 ft.	120
20 ft. by 20 ft.	108
25 ft. by 25 ft.	69
30 ft. by 30 ft.	48
33 ft. by 33 ft.	40
40 ft. by 40 ft.	27
50 ft. by 50 ft.	17
60 ft. by 60 ft.	12
66 ft. by 66 ft.	10

RULE—Multiply the distance in feet between the rows by the distance the plants are apart in the rows, and the product will be the number of square feet for each plant or hill; which, divided into the number of square feet (43,560), will give the number of plants to the acre.

How the Shells Work

DATED from "A Dirty Little Town in France," a letter from a young American officer tells how the French shell German headquarters.

The writer tells of his first experience in observing the work of the artillery. At the top of a hill a French officer was directing the fire of the battery 1500 yards behind. They were shelling a village held by the Germans not 800 yards from the oficer's post of observation. The American says:

"He stopped and shook my hand most heartily and seemed most glad to meet me. He explained everything to me, showed me the tiny telephone his orderlies used to give the range to the battery at his command. He then asked me if I would like to see him make a few hits, and of course I said that I would not mind, secretly tickled to death.

"He told me to put my glasses to my eyes and pointed out a red brick house on the extreme left of us, a house which he indicated on his pocket map which was reported to billet a German company. I instantly glued my glasses to my eyes and I heard him call to his orderlies, who stood four feet behind him with the tiny telephone, something which sounded like 'two degrees to the left repeat.' Then suddenly I heard a distant boom and a screeching through the air, and after a few seconds another boom, and, bless you—the house which I had confined within my glasses blew up into the air and fell back in smoking ruins. His had been a perfect hit."

Mental Science in War

PSYCHOLOGISTS are watching with great interest the spread of Christian Science in the trenches and among French soldiers. Within a period of two years, since the beginning of the war, the Scientists have gained over 100,000 converts to their faith, mainly among the soldiers. The attendance at their two Paris churches has gradually increased until it is triple that of pre-war times, and over 300,000 brochures, tracts and pamphlets, translated into French with the English text on the opposite page, have been distributed within the army zones.

At the headquarters in Paris of the organization Miss Mary L. Struve of Seattle, who is in charge of the reading room, stated that hundreds of letters were received weekly from French soldiers at the front requesting further information and leaflets concerning the new religion, while the reading room itself was daily visited by a number of soldiers on permission. Miss Struve also said that at the Wednesday night meetings, at which testimonials from the congregation were the rule, it was no unusual sight to find half of the congregation composed of the blue-coated "poilus," some of whom told the most remarkable stories about narrow escapes from death at the hands of the enemy, which they attributed to their state of mind amid danger.

The Echo de Gourbis, one of the liveliest of the journals published in the trenches, comments on the fact that if America has sent men, materials and munitions to France, she has also contributed missionaries to expound mental science to those who are interested in it. The journal, after remarking that the style of some of the brochures is reminiscent of passages from Dickens, explains the interest taken by the ordinary "poilus" in the to the fact there is so much [illegible] and suffering caused by the war.

Morals of Modern Soldier

FROM the moment he is enlisted, the allied soldier is guarded like a child. His moral and physical well-being is a matter for careful attention. Temptations are officially removed from a clearly defined zone round the camp. The best homes vie with each other in entertaining and amusing him in his spare hours. Funds are generously subscribed, in and out of the regiments, that not a single man should lack for comforts. As soon as he reaches the front, he is showered with magazines and first-class reading matter. He is permitted to visit the big cities only on presentation to his regimental officer of a letter from a reputable citizen, "O. K'd" by the local police as to that citizen's honorable standing. The French soldier is forbidden any alcoholic beverage but the highest of wines. The American soldier, billeted in French houses, finds the family already forewarned against offering him the social glass. Mrs. Astor, we read, visiting a town in France, noticed a large hotel in a prominent location, and learned that it was popular with the American soldiers, but had a bad influence. She immediately bought it for 50,000 francs.

It is truly signficant that we now look upon the soldier less as food for cannon than as food for thought. Doubtless the professional soldier will speedily disappear. It was lack of education, of mental food, that once made war a favorite occupation. Now, with modern education and industrialism, law will take the place of war.

Warning to Autocracy

I WOULD not be a true spokesman of the people of the United States if I did not say once more that we entered this war upon no small occasion and that we never can turn back from a course chosen upon principle.

Our resources are in part mobilized now and we shall not pause until they are mobilized in their entirety.

Our armies are rapidly going to the fighting front and will go more and more rapidly.

Our whole strength will be put into this war of emancipation—emancipation from the threat and attempted mastery of selfish groups of autocratic rulers—whatever the difficulties and present partial delays.—President Wilson.

How to Spread Manure

TO spread manure evenly and finely is very important. The well pulverized and evenly distributed manure as spread by a good manure spreader is more readily incorporated with the soil and gives quicker and greater returns than can be secured from hand spread manure. A number of comparative tests indicate that two tons of manure applied with a manure spreader will have the efficiency of three tons spread with a fork.

The manure spreader not only does away with the hard, disagreeable work of spreading manure, but it does the work better and in about one-fourth the time required for hand spreading. It easily saves the wages of one man, makes the manure go farther and increases its fertilizing value. It is one of the most necessary and greatest money-saving implements used on the farm and yet it is reported that only about 10 per cent of our six million farmers in this country have purchased manure spreaders. This number should be largely increased during the next two years.

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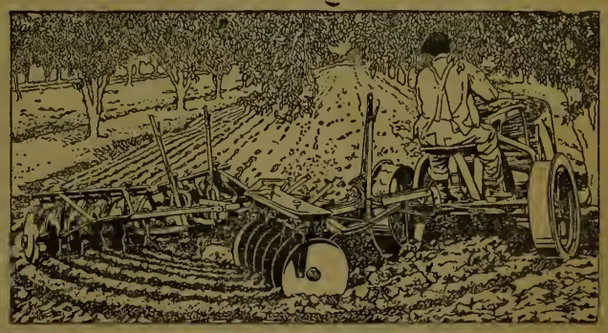

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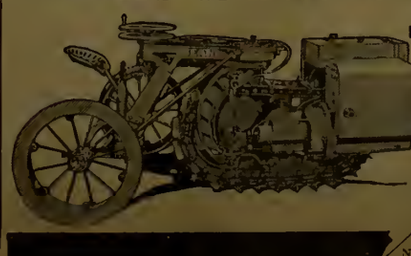
BEAN TrackPULL Tractor



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Maine Potato Methods

By E. R. Cleveland

Of Aroostook County, Maine.

AROOSTOOK COUNTY, ME., is probably the greatest potato growing section in the whole country. Enormous crops are grown there every year. Subscribers to Orchard and Farm often write in and ask how the Aroostook farmers get their big yields. This is partly explained by the practice of E. R. Cleveland, as given in the following Orange Judd article:

Mr. Cleveland's potatoes averaged 462 bushels to the acre last season in that part of his field devoted to a certain variety.—Editor.

WHILE the yield has often been exceeded by other individuals in Aroostook, Me., the output of 462 bushels per acre is the largest crop ever harvested in our farm operations covering 25 years, and this yield applied, indeed, only to that part of our 85 acres including the Gold Coin variety.

The ground used had been two years previous in hay, following the usual rotation of grain and potatoes, and carried a heavy sod. The soil was light loam, clean and entirely free from any obstruction to farm machinery.

Careful plowing was done in the fall, and when the ground was in good condition for working was disked six times the second week in May until thoroughly pulverized, after which the leveling harrow was used several times and the land made in perfect condition for planting.

The seed was carefully selected and thoroughly treated with formaldehyde gas and freely dusted with sulphur as cut. This, in addition to arresting the bleeding, covers the cut surface, so that no damage results should it come in contact with fertilizer in process of planting.

Planting was begun May 19, a horse planter being used and gauged to drop the seed 10 inches apart in rows 32 inches from center to center.

For fertilizer 1200 pounds of blood, bone and potash fertilizer was applied by the planter, and just before plants were ready to break ground a weeder was used to clean the surface of all weeds, and about 600 pounds fertilizer per acre additional was sown broadcast, after which the ground was thoroughly cultivated.

When plants showed well above ground they were carefully gone over by hand hoes to remove all weeds between hills, after which they were horse-hoed five times through the growing season, alternating the same number of times with cultivator.

Bordeaux was applied six times at proper intervals during growth, beginning when plants were about six inches high and using 100 gallons per acre containing 10 pounds blue vitriol and 11 pounds lime thoroughly mixed. Of course we added enough arsenoid of soda to take care of potato bugs, which that season called for one application only.

Digging was commenced September 20th, and the entire 85 acres were harvested in prime condition, with no loss by either frost, field rot or other causes.

International Film Photo.

An Aroostook Potato Grower and Some of His Big Crop.

California's Enormous Tomato Yield

IN THE February number of Orchard and Farm were given figures representing the crops of California last year and their percentage of the whole yield of the nation in each case. Tomatoes were not included in the list, as the figures were not yet available. Now, however, the Government has sent out its tomato figures and they must be a source of surprise to some of the well-known tomato growing States. While Maryland produced 204,867 tons and New Jersey 155,574 tons, California's yield was more than that of those two States put together, or 382,282 tons. This was 29 per cent of the total crop of the nation, which totaled 1,311,341 tons.

So again California is to the front in food production. This year the tomato growers promise a still bigger crop for this State.

Cost of Pure Bred Goats

FREQUENTLY Orchard and Farm is asked about the cost of pure-bred milch goats. In reply to such questions we can do no better than quote the following from the Angora Journal:

"Pure-breds will range from $50 upward. It is doubtful if even this figure would buy one of the best registered animals. Five months does of the Nubian, Toggenburg and Saanen breeds have brought $75 in the market.

"For household supply there is no need of getting a high-class doe. If the qualities of milk flow and constitution are present, such a doe, say three-quarter bred, will be productive of good milk supply. By attention to breeding—making sure of a good sire—the grade doe will throw kids that will show much of the character of the buck and will doubtless have all the good characteristics of the mother. If one is planning to enter the breeding business, selection should be more carefully made and both sire and dam should be of pure breed. Such stock will be priced at $100 and higher. There is, in fact, no limit to the value of a good registered pure-bred sire."

Team Work Will Win the War

THE United States is just US—you and I and the folks next door and the people across the way—just US.

All the government does is our doing. Its strength is our striving; its resources are our savings.

What we do counts to make or break the power of the United States—every minute, every act—to save or destroy US. In all we do, all we spend, all we eat—we must have care.

Food is our first and last resource, the dominant resource in this war. Our food supply is the final dependence of our allies; the food situation is the worst worry in Europe—worse now than when we began to figure. On our food supply hangs their fighting power, their chance of avoiding famine, their hope of survival.

We have already shipped to Europe every grain of this year's surplus wheat. To keep them going we must stretch our remaining supply—eat more corn and oats and potatoes. We must send them more meat, and we must eat poultry, fish and beans.

That means team work—going without wheat one meal every day and Wednesday every week; it means going without meat one meal every day and Tuesday every week; no pork on Saturday; a weekly sugar limit of three-quarters of a pound apiece.

Team work will do all that needs to be done. Let's help!

Cow That Sucks Herself

ONE of the common ways of preventing the cow from sucking herself is to tie a stick to a halter on the cow's head at one end and at the other end to a girth, letting the stick pass between her front legs. Thus she cannot twist her head around to suck. The stick must be strong to prevent her from breaking it.

Another way is to use a halter having a number of long sharpened nails or prongs on the piece circling the mouth and nose. This device is effective with some cows, but with others it is not.

A third method practiced by some is to slit the tongue of the cow. It is said that this entirely prevents the cow from sucking herself and that the slit tongue does not affect her eating. If this method is adopted a good veterinarian should perform the operation.—W. M. Wood.

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Save $15 to $200

Have More Power—Do your work easier—Get a better engine—At less cost—Make more money—Save more fuel—Immediate Shipment—No waiting—Five-Year Guarantee—90-Day Trial—Hundreds of engines—2 to 22 H-P.—all styles—Ready to Ship—Suit yourself as to terms—Cash—or Payments—or NO MONEY DOWN if arranged for. Write for latest book—(copyrighted)—"How to Judge Engines"—and latest wholesale factory prices—Direct. I ship everywhere in the U. S.—guarantee safe delivery—Save you $15 to $200—make you the best price. I ship big engines—or small engines—on wire orders.—ED. H. WITTE, Pres.

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"TILE-LYKE" for all Interior Purposes, Any Color, Including WHITE, High Gloss, Egg Shell or Flat, 10 gal. case, $1.50 gal.
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No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.

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embodies these advantages:—

It has 20% greater carrying capacity than either riveted steel or cast-iron pipe, costs much less and lasts at least as long as the latter and several times as long as the former.

Redwood is immune to the attacks of insects, acids and alkalies.

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Here we have long life, continuous service, complete satisfaction, and at a cost so low that none should lay any other than Pacific Redwood Pipe.

Our engineers will be glad to give you an estimate of the cost of the pipe you should have, if you'll tell us the conditions creating your needs.

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Please send promptly your catalogue of Water Tanks.

I need a tank to hold..... gallons.

It should be mounted on a tower .....feet high.

The water to be delivered from .....

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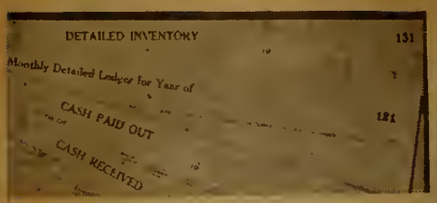

Federal Farm Bureau,
705 Ferguson Bldg., Los Angeles, Cal.
Gentlemen:—
Please send me by prepaid parcel post one copy of Farmer's Simplified Accounting System (regular price $5), for which I am only to pay $4—upon delivery, as I am sending (5) Farmers' names separate.

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Uncle Sam classes farmers as business men, who must report under the Income Tax Law.

We can save you a lot of worry and a possible Government fine.

Increase your profits by cutting the cost. How? By sending for our Accounting System today and keeping an accurate account of every farm transaction.

Our Farmer's Account System is prepared for five years of bookkeeping. All in one volume. A page to a month —132 big pages. Book is 14-16 inches, beautifully bound and finished in gilt and red leatherette bindings.

It will show you what crops made you money. It will give you a permanent, five years' record of every day's work on the farm, and what it cost, and what your profits are.

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Banks always will loan more money and loan for less interest to the farmer who can show by exact figures how he stands financially.

Only 5 or 10 minutes a day required to make necessary entries. "System" is so simple a school boy or girl can keep it.

Agents wanted—Los Angeles, Orange, San Bernardino, Riverside and Imperial Counties.

HUNDREDS

of the citrus growers of Southern and Central California are using

GARBAGE TANKAGE

composed of BONE, MEAT, BLOOD and VEGETABLES.
All Fertilizer—No Filler.
Large Humus Content.
Write us for further information.

So. California Fertilizer Co. 602-10 Kerckhoff Bldg., 6th and Main Sts., Los Angeles, Cal.

RHUBARB

Special Prices on Plants. Order Now!

I was awarded Grand Prize on Rhubarb, San Diego, 1916. Sold 675 30-lb. boxes, receiving $673.70 from 2350 plants on sandy loam between orange trees, first season after planting. Perennial—only has to be planted once.

Write now for illustrated circular, recipe for a very delicious pie and price list of plants.

W. A LEE, Covina, California.

Hardie Orchard Gun $12.00

Here it is, the new Hardie Spray Gun that is revolutionizing spraying methods. Does the work quicker and easier than ever before. This device shoots an enveloping spray, carrying the spray to the tree tops. Takes the place of the cumbersome spray rods and tower. With the Hardie Orchard Gun you can spray all day and hardly notice it. Spray easily regulated. No complicated parts to get out of order. Lasts for years. Made by Hardie Manufacturing Company, manufacturers of Hardie hand and power sprayers and spraying devices for over 18 years. See one at your dealer's or send direct to us. Guaranteed satisfactory or money back.

Hardie Spray Pump

Without question the simplest pump ever put on a sprayer; gives high pressure and big capacity—smoothest working, saves gasoline. Many growers are increasing the capacity of their sprayers by putting on Hardie spray pumps. Easy to install and made in sizes to fit your needs. Same design pump as used on the famous line of Hardie Power Sprayers. Contains all Hardie features such as Manganese steel crankshaft, phosphor bronze bearings, threadless valve cages and pressure regulator —an integral part of the pump. The one pump that has made good everywhere.

Write for Hardie Catalog. Describes Hardie 1918 sprayers and spraying devices. Know about the Hardie line before you buy.

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Hudson, Mich.
Branches in Portland, Ore.; Kansas City, Mo.; Hagerstown, Md.; Brockport, N. Y.

Spraying Citrus Trees

Not Always a Good Practice

By John P. McCoy
County Horticultural Commissioner, San Bernardino, Cal.

SINCE fumigation was put on a commercial basis, spraying, as used for the control of scale insects on citrus trees, has been practically discontinued. True, there have been several times when spraying has had a new lease of life for a short time and in some districts quite a number of growers would spray, but these spray spasms have always been followed by a return to fumigation. At times a batch of spray men appear on the scene with new sprays or the same old sprays under new names, one of their stock arguments being something like this: "Much cheaper than fumigation; much more effective and no damage." It is reported on good authority that there is a "sucker" born every minute. I don't know that the count is exactly accurate, but I do know that last year many growers "bit," and I also know that there are very few of those who tried spraying last year that are going to try it again this year.

Reasons for Not Spraying

There are certain reasons why spraying is not a satisfactory method to employ when trying to rid citrus trees of scale insects. The foliage of citrus trees is usually dense and remains on the trees throughout the year, while the scale scatters over the twigs and leaves. If it is a bad infestation of black scale there may be hardly a leaf on the tree that has not some young scale on one or both sides of it.

Under such conditions in order to do satisfactory work with a contact spray it is necessary that every leaf on the tree be thoroughly wet on both sides. This seems to be an impossibility when doing work on a commercial scale. Be the spray ever so good, there are always patches on the trees where live scale can be found due to those places being missed. Then again citrus trees not becoming dormant to the same extent as deciduous trees there is no time when a dormant strength spray can be used on them.

During the fall of 1916, owing to the shortage of cyanide, about 5000 acres of citrus trees were sprayed in San Bernardino County. About a dozen different sprays were used and it gave us a splendid opportunity to compare the results. One of the striking features of the investigation was that none of the sprays gave uniform results. Perhaps there would be a 90 per cent killing in one grove and another grove treated with the same material would show only a 40 per cent killing.

Careful Work Necessary

This difference may have been due to the denser foliage in one grove or to less careful work; perhaps temperature and moisture conditions had something to do with it also. It seems to be almost impossible to keep the man who holds the nozzle keyed up to a pitch where he will do careful work all the time.

Another feature of some of these sprays was the very severe damage they would frequently cause. This damage consisted in dropping leaves, burning fruit, dropping fruit, and sometimes killing the twigs and smaller branches until the trees would look as though a fire had gone through them. One of the sprays did little apparent damage at the time of spraying except to leave slight discolored spots on the fruit. We called the growers' attention to these spots, but the spray agent said they would wash off with the rain and do no damage. When this fruit was packed it was culled heavily on account of these spots.

In one grove that I visited about three weeks after it had been treated with a certain spray, I found that two-thirds of the leaves were on the ground and all the way from a few up to 350 oranges under each tree. Of course this was a very extreme case, but it shows what may happen with some sprays. This happened to be one of the sprays that the agent claimed could be used for half the cost of fumigation, with 50 per cent more efficiency and no injury.

In another case which shows the treachery of some sprays, a company recommended that a man use a spray that had been used on another grove a short time before with no apparent damage. The man used the spray and received such severe injury that he brought suit and got judgment for $1000 damages.

Arsenic Causes Burning

Our investigations led us to believe that sprays containing arsenic were apt to cause severe burning of fruit, dropping of leaves, and dead wood. Miscible oils were apt to cause defoliation and spotting or dropping of fruit. Sprays containing sulphur frequently burned the fruit if applied when the temperature was very high. Some sprays in which there was much soap seemed to bleach or yellow the trees and sometimes burned the fruit. Kerosene and distillate, when properly emulsified, did little visible damage, and where carefully applied controlled the scale as well as any other spray and better than many. All sprays when strong enough to kill scale do more or less injury to citrus trees; spraying is not as efficient as fumigation; it is not cheaper because it must be done oftener and it causes more damage.

A number of sprays have been put on the market with the claim that they have been thoroughly tested out and found to be almost perfect scale insecticides and that they would cause no injury. These same sprays have caused some injury in many of the groves in which they have been used and in some cases the injury has been very severe. Often the formula has to be changed, which proves that the spray was not thoroughly tested before it was put on the market.

Advice to the Orchardist

My advice generally to a man who feels inclined to spray is, not to spray his whole grove with some spray that he is not familiar with, but if he wants to try it to spray a few trees and wait for results before using it on the rest of the grove. Even then under different conditions he may get different results.

There are certain conditions where I advise spraying. Very young trees are apt to be broken by tents and on account of being small may be thoroughly sprayed with some reliable insecticide with good results. Sometimes trees are so situated near houses or fences that it is impossible to put tents over them. In such cases spraying is permissible. Again, in the case of very large trees, it is sometimes advisable to keep the scale in check by spraying. But for general orchard work fumigation is no more expensive in the long run and is much more satisfactory.

Fifty thousand tons of linseed cake originally consigned to Holland will be sold at request of the consignee for consumption in New York, Pennsylvania and New England, according to an announcement authorized by the United States food administration. This amount of linseed cake, it is hoped, will supply a large portion of the concentrated feed needed this winter and spring in these States

The Home Beautiful

Making the home attractive is a duty you owe to yourself and family. Ordinarily your home is fully expressive of your own personality—therefore as much care should be given to the attraction of the place, in which you dwell, as the attention you give to your personal appearance.

A bit of drapery, a bright rug or an artistic piece of furniture will liven up the dark spots and lend much to the "homey" appeal of a real home.

Make your home a real home by writing Barker Bros. for catalogues, pictures and prices of the goods you need. Address MAIL ORDER DEPARTMENT, DIVISION 30.

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The House of *Competent* and *Complete* Home Furnishing Service.

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SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand.

Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes. LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET; also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.,
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Save 25% to 33⅓%

Complete Cozy 5-Room House

Will be shipped complete—cut-to-fit and ready to erect— for $975

This price includes Lumber, Inside Finish, Sash and Doors, Screens, Roofing, Paint, Hardware, Plumbing, Electric Fixtures and Wiring, Built-in Bed, Shades, Cement and Plaster. No waste, no extras to buy because all the material you need is included in the price.

No need to pay high prices on building material. Buy direct from headquarters.

Send for Plan Book—containing floor plans and prices of comfortable homes from $325 up. It shows you how to save 25% to 33 1-3% on building costs. Sent free on request. Write today, or call and see us.

All materials specified are of the very best grades obtainable in their respective kinds. Each piece is inspected before it is sent to the cutting room, and experienced men handle the cutting and the loading, so it is finally inspected three times before shipping.

California Ready-Cut Bungalow Co.
[illegible] So. Main St., Los Angeles.

Big Orange Show

SETTING out to eclipse all that had previously been done in the way of a citrus exposition, the National Orange Show at San Bernardino last month was a wonderful affair.

Florida had a very creditable exhibit of citrus bi-products, which was generally admired.

California's displays included a battleship complete in every detail, which moved with the waves. This was Riverside's offering to the show. San Bernardino's water department presented a fleet of aeroplanes, which circled over a lily pond and fountain. The Redlands display was an armored motor car, constructed of ivy leaves and oranges. The Pacifc Electric had a big armored train, carrying an immense gun as the central feature. Orange County's display was full of action. It depicted a submarine, a submarine chaser and a steamship in the water.

Pasadena's Tournament of Roses was shown in miniature, gorgeous floats winding their way through a representation of one of Pasadena's great thoroughfares. The San Bernardino County offering was a British tank, an exact replica of the tanks on European battlefields. Rialto had a very artistic Italian pergola feature. Colton presented a miniature Mount Slover, where the great cement deposit is located amidst orange groves.

The citrus by-products display was the largest that has ever been arranged in connection with the national orange show. This was under the direction of Mrs. R. V. Hadden, its originator. There were jams, jellies, marmalades, candies, pastry; in fact, everything that is made from oranges, lemons and tangerines and grapefruit.

To Grow Castor Beans

THE California Castor Bean Association is desirous of adding to its membership in order to insure planting a full 5000 acres, a contract for planting which has been given by the War Department.

The Castor Bean Association is cooperative and any advance in price obtained over the minimum guarantee of $3.50 per bushel of 46 pounds will go to the grower, less costs of management. It is believed the price obtained should be about $4.50 per bushel and payment is promised f. o. b. nearest shipping point. The Government will furnish seed at cost, and it has already ordered over 800 bushels shipped from New York to the association.

The management will advise the grower as to the method of planting and will give supervision of the growing crop. The United States Department of Agriculture has found, after interviewing numerous former commercial planters of the castor bean, that they are unanimous in declaring that the crop proved beneficial to the soil. Such being the case, the castor bean should make an excellent winter crop for young orchards, especially if the soil is rather light. The Government needs very large quantities of castor oil as a lubricant for aeroplane motors and expects help to this end from the ranchers of this State.

Henry S. Gane, president of the Santa Barbara Olive Company, and Prof. W. S. Oglesby, formerly of the State University, are the executive heads of the new organization. Full particulars as to membership, planting, etc., will be given by addressing California Castor Bean Association, Howard Canfield Building, Santa Barbara, Cal.

Don't kill laying hens. Feed prices are bound to come down before long.

WHY

YOU SHOULD INVEST IN

YUCAIPA GATEWAY COLONY NOW

BECAUSE, 1—CHOICE RED WINTER APPLES, grown under proper conditions, net the grower GREATER PROFITS than any other horticultural product grown in California.

BECAUSE, 2—Land in California, possessing all the conditions of climate, altitude, soil, rainfall, etc., necessary for the production of perfect winter apples, IS EXCEEDINGLY LIMITED.

BECAUSE, 3—Yucaipa Valley is a "PROVEN" DISTRICT. The 5000 acres of apple orchards planted there in the past seven years tell the story, and prove beyond question that Yucaipa Valley Winter Apples in TEXTURE, COLOR AND FLAVOR are not excelled in any part of the United States.

BECAUSE, 4—A large percentage of the choicest apple acreage in this valley **has already been sold,** and at the present rate the supply will soon be exhausted, which means that land values will inevitably advance as the supply diminishes.

BECAUSE, 5—Freight and passenger transportation service for the valley will soon be supplied by extension of the Pacific Electric Railway from Redlands. (Its completion means another legitimate cause for advance in land prices.) Surveys have been completed, route selected and deeds for right of way are now being taken. Intrinsic commercial values are recognized by capitalists and loans of $200 to $300 per acre on young orchards are obtainable at low interest rates.

The General Manager of the YUCAIPA GATEWAY COLONY, Mr. Geo. W. Hopkins, recognizing the tremendous future possibilities of the Yucaipa Valley, undertook its colonization twelve years ago, when the entire valley was devoted to hay and grain. Since that time, he has given it his undivided attention, and present developments have fully demonstrated the correctness of his "vision." He desires to announce that the acreage of the

GATEWAY COLONY

now being sold, is fully equal, and, in respect to its greater altitude and its consequent cooler nights, and its larger rainfall, even superior, to the apple lands which have already been planted. Its lands are the nearest of all the apple acreage to the Santa Fe, at Mentone, and the Southern Pacific, at Crafton.

THE GATEWAY TOBOGGAN

The grade of the new Mill Creek Boulevard is such as to form a perfect toboggan, and freight by auto truck may be delivered from the center of the Colony to rail, BY GRAVITY.

SCENIC BEAUTY

For home purposes, scenic beauty has a real intrinsic value, and certainly a "word artist" is needed to properly describe the beauty of location of the Gateway Colony. Located at the highest point in the valley, it commands an unobstructed view of not only the entire valley, including Yucaipa City, but also of the great orange groves of the San Bernardino Valley, with the towns of Mentone, Highland, San Bernardino, Colton and Rialto, and in the evening, with their myriads of electric stars glistening across a stretch of 20 miles, affords a sight not easily described.

The Gateway Colony lands are now being sold in subdivisions of 2½ to 20 acres upon easy terms of payment. Certified title is furnished buyers by the Title Insurance & Trust Company of Los Angeles. Orchards planted and cared for at actual cost for non-residents, affording them an opportunity to acquire a full-bearing orchard without interfering with their present business.

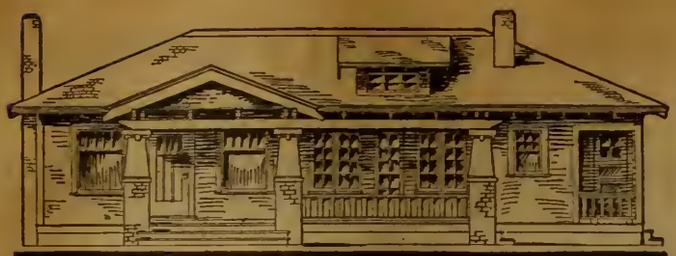
FREE

Illustrated folder with views and description of entire valley, mailed free upon application.

Rebate certificates good for full amount of railroad fare from all points, east or west, to the Gateway Colony, on account of 10-acre purchase, mailed free.

YUCAIPA GATEWAY COLONY

606 S. Spring St., Los Angeles, Cal.



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It's a "NATIONAL," which is assurance that it is a practical home. Adapted to California conditions and tendencies, it embodies many original features. Price includes lumber, lath, shingles, doors, windows, nails, paint, tin work, hardware, building paper, plans and specifications. You pay in full when satisfied.

Our New 1918 Plan Book

is now ready for distribution. It gives particulars of the above and many other types of "NATIONAL" homes. WRITE TODAY, ENCLOSING 6c FOR POSTAGE.

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FURNITURE
Directly from factory at
One-Half Retailer's Profit
Write for Big Free Illustrated Catalog.
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ANTS
SCHRADER'S
Ant Destroyer—is slow acting—does not kill instantly, but gets the nest as well as the parent. Does not lose strength. Positively non-poisonous—no danger to children, house pets or foodstuffs. Send 6c for trial can. Ask your neighbor. She uses it. At your dealer. Accept no substitute. Write Schrader Chemical Co., Dept. O, 19 to 25 Minna St., San Francisco, Cal.

GOLD!

For Your Spare Time

$750 IN CASH PRIZES

And 30% Commission

We are going to give away $750 in cash prizes to boys and girls living in small towns or the rural districts for doing a little spare time work for us.

Do you need $400 in Gold? That is the amount of the first prize. Then there are six other prizes.

The contest will start right away. A certain number of points will be given with subscriptions secured for Orchard and Farm, the Great Western Farm paper, for which you will be paid 30% commission, and the person who has the highest number of points to his credit at the close of the contest, March 21, 1918, will be awarded the $400 in gold. The second highest will receive $150. The third highest will receive $75. The fourth highest will receive $50. The fifth, sixth and seventh highest will each receive $25. In case of a tie prizes of equal value will be awarded to the contestants so tied.

Don't Wait

Send in your name and address today on the coupon below and begin making money at once. Full information about the contest, also names and addresses of prize winners in our other contests, and a letter telling you just how to proceed will be sent free by return mail. So act

Orchard and Farm,
Examiner Building,
Los Angeles, Cal.

Dear Sir: I am interested in your gold contest. Please send free of cost the free outfit and your special easy plan to get subscriptions fast, with full information about the prizes and contest, and tell me how I can win $400 in gold and earn from $50 to $75 per month at the same time.

Name .....

Address..... R. F. D..... Box....

Fur Rabbits Pay Well

Experience of J. M. Sherman

By Ralph Davis

J. M. Sherman and His Prize Checkered Giant

HOW quickly and surely an alert person can get a good start in the fur rabbit business is shown by the experience of J. M. Sherman of 2269 North Griffin avenue, Los Angeles.

A year ago Mr. Sherman was a railway mail clerk on a salary of $100 a month. Today he is making from $150 to $200 a month with fur-bearing rabbits, ably assisted by his wife. It was a lucky accident for Sherman when his mail car was ditched near Daggett and he had to remain home for a while and nurse his wounds. His wife had bought a number of fur rabbits and had made a little money out of them. Sherman, looking over the hutches during his enforced leisure, thought he saw a chance to make the industry pay well, and he is now doing so. He sent to Sonoma county and got a wonderful pair of checkered giants, which are probably the best fur bearers in the field. The numerous progeny of these Sonoma animals, together with that of others formerly raised by Mrs. Sherman, make a fine showing. Mr. and Mrs. Sherman took first prizes for their checkered giants at the recent poultry show at Los Angeles.

Prince Leo, one of the Sherman giants, took first prize in his class, and he is certainly a wonderful animal—pure white save for his black nose and ears and some spots on his flank. Leo weighed twelve pounds when only seven months old.

A Good Fur-Bearing Breed

"It's a very interesting and profitable industry—this rabbit business," said Mr. Sherman the other day to the editor of Orchard and Farm. "I'm not going back to the mail service while I can do as well as I am doing now at this game. These checkered giants are very prolific, and I consider them the best breed to raise. We have tried several others, but they didn't begin to compare with the giants.

"A novice in this business can't afford to start on a cheap scale. He shouldn't have ten or eleven breeds. One good breed is sufficient and will make more money for the rabbit grower. The giants have six or eight young ones at a litter, and with four litters a year you can see how rapidly you will stock up your rabbit farm. It means, as I figure it, 128 rabbits a year from the original doe. It would not take long to raise a thousand at that rate. With 500 fur bearing rabbits a man could make a good living on one acre of land

"The checkered giants have the best coney fur, as it is called, of any of the breeds."

Here are Mr. Sherman's instructions to beginners who want to skin their own rabbits for fur:

"Catch your rabbit, grasp him by the hind legs, give him a sharp blow back of the ears with a stick, then bleed well by cutting the throat. The skin should be removed 'cased,' that is taken off whole, over the head, wrong side out, making no incision down the stomach.

Best Way to Skin Rabbit

"To remove the skin 'cased,' hang the animal by the heel tendons, after starting the cuts down the inside of the hind legs; slit the legs to the base of the tail in a straight line across the vent, and slit the tail. Many times the tail will slip whole, but unless it is slit open it is hard to tan, as liquor will not penetrate as easily and fur will slip or fall out.

"If the feet are well furred, one may have the skin of the feet, toes and

BIG MONEY IN TRAPPING

There is a STRONG DEMAND for California Furs

Write for our Fur Price List and 36-page FREE book

TRAPPING FOR PROFIT

Tells HOW, WHEN and WHERE to Trap. Shows how to make Sets. Tells you proper method in Skinning, Scraping and Curing Pelts, and the right BAIT to use.

E. R. SKINNER & CO.
SACRAMENTO, CALIF.

Ten Million Dollars

Congress, to increase next year's crops, has made this appropriation to bring Nitrate of Soda, at cost, from Chile. "What Nitrate Has Done in the Farmer's Own Hands" will be sent to you free if you send your address on a post card.

DR. WILLIAM S. MYERS
Director Chilean Nitrate Committee
P. O. Box 248, Berkeley, Cal.

REDWOOD TANKS

A tank, 5x2, $9; a tank, 7.4x4, 1000 gal., $23; a tank, 8x5, 1500 gal., $31; a tank, 5x4, 500 gal., $18. Tanks in stock up to 10,000 gallons. Thirty-five years in this business in Stockton. Try my improved non-shrinkable tank. References. Farmers' and Merchants' Bank, Stockton. I cut out the agent. Phone 2957.
R. F. WILSON, STOCKTON, CAL.

BAGS For ALL PURPOSES

New and second-hand. Every bag thoroughly inspected before shipping. Bags for grain, potatoes, seeds, rice, onions, beans, etc. Whether buying or selling, communicate with us.

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for Horses, Milch Cows, Chickens, Young Pigs and Hogs. Cheapest feed in the market today. If your dealer doesn't carry it, address
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nails all left on by severing each toe just above the nail.

"The skin is pulled down over the head, wrong side out, using the knife to cut any ligament attaching it to the flesh. Always cut towards the body rather than the skin, so that no cuts may be made in the skin. Bits of flesh and fat may be removed afterwards. When the fore legs are reached they may be cut off at the ankle joints or the toes, as desired.

"If one wishes to save the head and ears, cut carefully around the eyes and cut ears off next to skull, continuing to the nose and lips, which by patient cutting will come off nicely. The skin should then be fleshed, removing all flesh and fat, as any left on the skin will rot the roots of the hair and cause same to fall out. After salting well, be sure to cover all parts thoroughly, the skin should be put in a cool place for about four days to dry before tanning.

How to Tan Skins

"When skins are ready to tan, they should be washed in a solution of half a tub of luke-warm water to which has been added half a bar of common laundry soap, one pound of sal soda, one-quarter pound of concentrated lye and one ounce of liquid ammonia. This will remove the glue from the pelt, then they are ready for the tanning.

"A formula which has been used quite extensively and found very satisfactory, consists of the following ingredients: five gallons of water, three and one-half pounds of common salt and two ounces of sulphuric acid (fluid). Dissolve salt in water before adding acid. It is advisable not to lean over tub while stirring in the acid, as the fumes are not especially beneficial. Always use wooden or earthen tubs, as acid will eat metal.

"Some people have an idea that a hide should not be wet on the fur side, but this is all nonsense. Put them right into the brine you have mixed and let them stay well covered with the brine from six to twenty days, when they should be tanned.

"To tell when they are thoroughly tanned, stretch a portion of the hide over the knuckles and if it shows white like rawhide, it is tanned; if not white, put back in the solution for a few days.

Drying and Cleaning

"After the skin is tanned, wring out and hang on a line in the shade about twenty-four hours. Do not let them dry too much, but take down and pull and stretch with the hands and rub over edge of hardwood board in all directions, being careful not to stretch in the center, as this often happens if not pulled from all sides evenly.

"If they dry too fast, roll them up for a while, then continue the process of stretching, with occasional beating until quite dry. Do a little each day and the hide will be much softer when dry.

"To clean, immerse in gasoline as you would a piece of dress goods, rubbing with the hands, then wring out and rub corn starch or Fuller's earth in wet fur and hang on line to dry in sun. Beat all powder out and the skin will be clean and ready to make up into garments."

"It is a stringent rule on all our farms," says M. J. Norton, manager of the Carnation Milk Stock Farm at Oconomowoc, Wis., "that harsh language or unkindness toward the cattle is absolutely forbidden. Strange as it may seem, a cow is as responsive to pleasant treatment as a human being is. If you are mean to a cow she is pretty apt to return the meanness. Therefore we preach bovine optimism. We keep our cows contented and we find they give more and better milk."

-better alfalfa!
-bigger yields!
-more food value!
-more profit!

-Plant it now and get 2½ more tons per acre!

Wideawake ranchers have discarded the old types of alfalfa and are growing Germain's Hairy Peruvian exclusively—because it produces 2½ more tons to the acre than common alfalfa. The superintendent of the Arizona Agricultural Station says, "Hairy Peruvian produces heavily in all climates practically the year round. Gives farmer maximum yield from his land. The plant is heavily leaved, thus giving highest food value. We recommend it above all other types."

Make your land produce to the utmost—plant this wonderful alfalfa. Write for descriptive circular containing testimonials.

Germain Established 1871 Seed & Plant Co.
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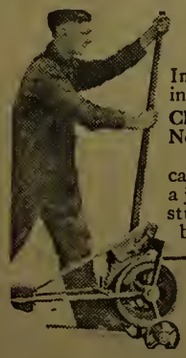

Turn stump land into Money

Increase your acreage and thereby increase your income.
Clear your stump land cheaply.
No expense for teams or powder.
One man with a HAND POWER K Stump Puller can outpull 16 horses. Works by leverage—same principle as a jack. 100 lbs. pull on the lever gives a 48-ton pull on the stump. Made of the finest steel—guaranteed against breakage. Endorsed by U. S. Government experts.

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Works equally well on hillsides and marshes where horses cannot operate

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The Man-Saver

The Martin Ditcher is a man-saver, and a time-saver—therefore a money-saver. Two men, four horses and a Martin will make or clean more ditch *in one day* than they could plow and shovel out in *three weeks*—time and man saving are big items *now*.

Fine for Terracing, Dykes and Roadwork

Made in 2, 4 and 6 horse sizes; can be used with tractor. Works equally well on side hill or level, or in wet or dry soil. Handles rocks and cuts alfalfa roots without plowing. Cuts or cleans ditches down to 4 feet deep. *All Steel, Reversible and Adjustable. Investigate the Martin NOW.*

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1571 Waxee Street Denver, Colorado

EDITORIAL DEPARTMENT OF ORCHARD AND FARM

Bailey Millard, Editor

Farm Labor Shortage

GENUINE alarm is felt in farming and food distributing circles of the Pacific Coast over the shortage in farm labor and the prospect that it will be impossible this year to harvest all the grains and fruits of the great food-producing districts of these States.

Land in California is held in large tracts and owned largely by men of substantial wealth. To harvest their crops with the aid of men resident in the community is out of the question. They depend upon the great army of migratory laborers who are also the backbone of other important western industries. These laborers have gone from harvest to harvest or from lumber camp to construction camp, leading the lives of vagabonds, finding it difficult or impossible to save, and living most of the time in unsanitary quarters.

This year many of them are otherwise employed, and their desertion of the migratory labor field threatens a serious economic crisis.

Wheat and dried fruits from the Pacific Coast are important items in the feeding of the armies and our allies. To meet the situation, the farm labor committee of the California State Council of Defense has brought in a report urging the importation of Chinese labor. The plan has been indorsed also by E. H. Gary, chairman of the board of directors of the Steel Corporation. The acute need for farm labor is seized upon as the entering wedge for a policy of wholesale importations. Powerful interests are for letting down the flood gates and diluting America's labor force and its racial stock with millions of Chinese.

Regardless of the abstract right or wrong of restrictions on such immigration, all liberal thinkers are agreed that for the present a policy of encouraging Chinese immigration would immensely complicate and intensify some of our most acute social and economic problems.

Orchard and Farm believes that there is another way out of the farm labor problem. Instead of importing Chinese it has suggested, and again suggests, that the city loafers, the idlers sitting on the cracker boxes in country stores, the steady patrons of the five-cent moving picture houses and the billiard rooms be rounded up and sent to the farms to help speed up food production.

In other words, draft men as farm laborers.

Why not?

If this Government has the power to send a man to France to be shot at it also has the power to send another man to a farm to help feed him.

It may be urged that such labor is not competent.

How long would it take to make it so?

Just a few months.

Any average white man can do twice as much work as an average Oriental.

Why not draft the vast army of city idlers—unproductive consumers, all of them—for the farms?

Changes in Harvesting

WITH a sickle a man could harvest one-half acre of grain a day.

With the scythe a man could harvest one acre a day.

With the cradle a man could harvest 2½ acres a day.

With the first reaper, invented in 1831, a man could harvest six acres a day.

With the modern binder a man can harvest 20 acres a day.

With the modern tractor and two binders a man can harvest 40 acres a day.

With the modern harvester thresher two men can harvest, thresh and bag from 12 to 20 acres a day.

We're Coming, France, Two Millions Strong!

LOOK at this Raemaekers cartoon. Isn't it inspiring?

Raemaekers is a Hollander who cordially hates Germany for what she has done to Belgium and for what she has threatened to do to Holland unless she keeps out of the war.

This artist is one of the most famous and one of the highest salaried cartoonists in the world. Not every farm journal can get his cartoons if it tried to, and few would care to pay the price asked for them.

Orchard and Farm, always anxious to give its subscribers the best there is going, prints this cartoon and intends to print others from the same source. Orchard and Farm has given its readers the best work of Burbank, of Campbell, of Mead and of other noted agricultural authorities. It is trying to improve the character of its contents with each issue, and this effort is telling in the large number of new subscribers it is adding to its list from month to month.

Orchard and Farm believes that our Pacific Coast farmers are patriotic. In fact, they showed themselves intensely patriotic last year by their tremendous output of foodstuffs. This year it is the same story of liberty-loving sacrifice and labor, only that the weather has not favored agricultural effort as in many other years. Our farmers want to help the government all they can. They know that upon them rests the burden of providing food for our own army and those of our allies.

But, getting back to that cartoon, Uncle Sam, with drawn sword, looks mighty invincible, doesn't he? As Secretary Franklin K. Lane says, the spectacle of a democracy making war is not a pleasant one. It is the highest compliment to a democracy that it makes war badly. It has not studied the game as the rotten old autocratic governments have studied it; but when it is necessary it can do so, and then let despots beware!

We never have entered a war that was not a righteous one, and this is the most righteous and the most unselfish of all.

We are learning a lot of other things beside the art of war. The lack of many articles formerly imported from Europe has set our Yankee ingenuity to work. We have learned how to make dyestuffs, for example, and are forging ahead in the manufacture of them. No longer shall we be dependent upon Germany for these things or for many other things. We made a record production of lead last year, the Pacific Coast alone furnishing over 11,000 tons more than in the previous year. We are raising more corn and barley and have enormously increased our production of potatoes.

One splendid thing we have done for which thousands will thank us, and that is the bringing of war insurance benefits to so many of our army and navy men. Before Uncle Sam gets through with that branch of his wonderfully efficient labors he will have given every soldier and sailor in the service a war insurance, and this will mean much to them and their relations, as well as to the whole country. This wise provision and the other welfare and economic work will make the war burden lighter to us than it has been to the people of other countries engaged in the terrible conflict.

Yes, we are in good hands. Uncle Sam is looking out for us to the best of his ability. Let his critics howl as they will, he is on the job for our welfare as well as for that of his noble allies.

Just a Warning

ON BEHALF of the rural producers of this coast Orchard and Farm wishes to serve notice on those responsible for the next annual tax budget in each county of the Pacific Coast.

If you have up your sleeve any scheme for increasing town or county assessments or taxes in these times when the entire population is being so heavily levied upon by the Federal Government in this war emergency, you will be set down as a traitor to your country.

Or if you have any idea that you are going to put over the excessive tax rates of last year you will not be considered in a much better light.

This is no time to plan to put through some pet project to build a $100,000 high school in a $10,000 town, to run a concrete roadway over some bog that is to be traversed by ten teams or automobiles a day.

This is no time to work out a wonderful electric lighting scheme for some village whose inhabitants go to bed with the chickens.

While we are paying war taxes on every parcel post package we send out, while we are pressed for extra income tax, for railroad fare tax, and must pay higher for every article of food and clothing, you, Mr. Assessment Raiser, are going to hear from the plain people if you lay it on too thick at this particular period.

Your chances of re-election are going to be nil.

You are going to be considered the foe of the farmer. You are going to be looked upon with contempt as the rankest pro-German of them all.

You have had your warning. Now be good!

Uncle Sam's Impartiality

A VETERAN labor leader with a wide and intimate acquaintance in the labor field said the other day in Washington that the impartial administration of the conscription act had done more than anything else to win for the Government the confidence and support of the wage earners. When they saw millionaires' sons drafted side by side with their own they knew that Uncle Sam was "on the square." They didn't expect this—they had no reason to—and when they saw it their quick, warm appreciation went out to the Government—at once a tribute and a sorry reflection.

HEADS OF GRAIN

MARCH is the month to start your California war garden. Good time to plant onions, cabbages, asparagus, beets, beans and artichokes.

Don't let your automobile trips keep you away from the garden.

Not rain enough in your section? Well, what's the matter with dry farming?

Let the women get busy in the garden and field to help piece out and make good the help shortage.

If half the town loafers were set to work in the field, we could win the war hands down, says Orchard and Farm.

California could and should raise more corn, the most nutritious of food stuffs when properly ground—that is with the vitamins left in.

The Orchard and Farm family is growing every day, and it's a happy family, too. If you are not a member of it, better become one.

Let your seed potatoes stand two hours in a solution of one ounce of formalin to two gallons of water if you want them to be free from scab.

Send in your story of real, practical experience in growing some staple crop. Orchard and Farm will be glad to publish it, and our committee may award you a prize.

Sunflowers

Gone Another Way

A QUAKER had gotten himself into trouble with the authorities and the sheriff called to escort him to the lockup. "Is your husband in?" he inquired of the good wife who came to the door.

"My husband will see thee," she replied. "Come in."

The sheriff entered, was bidden to make himself at home and was hospitably entertained for half an hour, but no husband appeared. At last the sheriff grew impatient. "Look here," said he, "I thought you said your husband would see me."

"He has seen thee," was the calm reply, "but he did not like thy looks and has gone another way."

These Husky Hebes

The girl he left behind him: "Don't you remember your little Annie?"

Mangled Maxims

The Munitions Maker—Peace would be hell.

The Real Estate Man—A new boom sweeps clean.

The Farmer—The hand that runs the reaper rules the world.

The Kaiser—We maim to please.

The Doctor—While there's life let's dope.

The Food Magnate—To the poor all is pure.

The Slacker—Duty is only skin deep.

An Economist

Around her waist my strong right arm
With neat dispatch was placed.
In times like these I feel alarm
To see a useless waste.

Where Do We Go From Here?

Willie and Jimmie, expecting to steal a ride for half a mile, find they are headed 250 miles away at 40 miles an hour.

Exposing His Igorance

Landsman—What's the horsepower of that engine you're running?

Jackie—It's got no horsepower. Can't you see, it's a donkey engine.

How the War Started

He asked her if she would be his wife and she said "yes."

Pertinent

Doctor—It is nature, not I, that heals.

Patient—Then why do you charge for it?

More Practicable

Inventor—Do you want to buy my newly patented bullet proof vest?

Financier—No; but I'd be interested in a soup proof vest.

Shall I?

I am fond of a girl, deeply, truly
But I know from the loves of the past,
That my passion, however, unruly,
Somehow or other won't last.

I don't want to love her forever,
But I'm scared to inform her of this,
But I fear if I do, she will never
Endure my caresses or kiss.

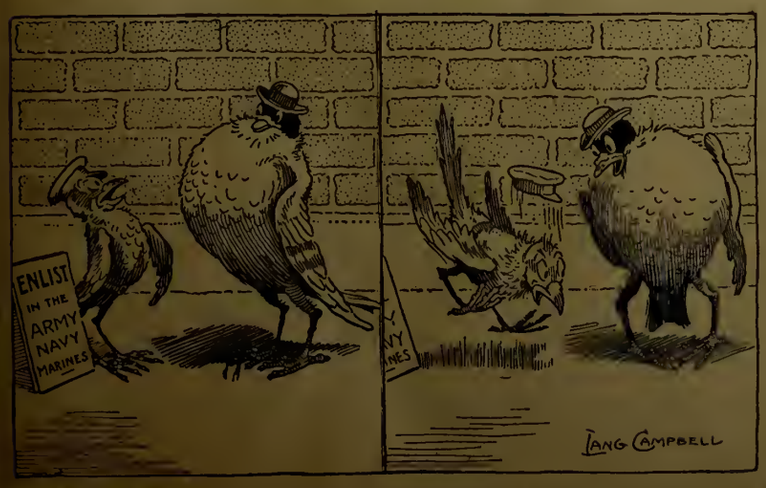
So what shall I say? Don't be chary.
Advise me, I beg it of you.
Shall I tell her my love's temporary,
Or lie as all other men do?
—Percy Waxman.

Turned Down

Baker—I thought Hazard was determined to join the army?

Barker—He was; he was too determined; he was so determined that the recruiting officer ejected him for being flatfooted.

War Time in Bird Center



"Yours a big, strong looking pigeon. Why dont you enlist?"

"I couldn't pass the examination. I'm so darned pigeon-toed!"

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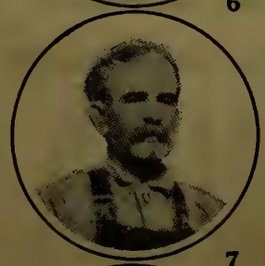
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Productive Land with WATER at $250 an Acre

No. 1—"I have actually urged my friends to go in debt to buy Nuevo land."—H. S. Gordan.

No. 2—"Where will you find better soil and climatic conditions than right here at Nuevo?" —Fred Walker.

No. 3—"I never saw anything to equal Nuevo land for the money."—B. J. Mather.

No. 4—"I am mighty glad I bought at Nuevo Ranch. I can truthfully say that land here at $250 an acre is every bit as good as land in other parts of Southern California held at $800 to $1000 per acre."—Ray W. Wallace.

No. 5—"I am thoroughly satisfied with conditions at Nuevo, and I want more of this land."—A. F. Clubb.

No. 6—"I don't believe there is a better opportunity in California for the man who wants to get ahead than right here at Nuevo."—W. S. Caswell.

No. 7—"I took $967 from two acres of Nuevo land planted to potatoes last year. What more could you ask me to say about the productivity of this land?"—Henry Linden.

No. 8—"Nuevo is growing rapidly and I look for a steady increase in land values. Consider me a permanent booster."—Mrs. Ida C. Wood.

60 more well-pleased farmers say more good things about the Nuevo Ranch.

Food, rents, clothing, shoes and commodities of almost every character are going up—up—up. And it will be perhaps years before there will be relief from the upward trend of prices. Why not decide today to own a little farm, produce your own food supply, settle the rent problem and the "high cost of everything"—and be in a position to put away money? Even five acres at Nuevo will produce a good living and ultimate independence.

The Nuevo Ranch is beautifully located in the picturesque San Jacinto Valley, in Riverside County. The soil is of remarkable uniformity. The entire ranch is a productive, loose, sandy loam, which does not bake. It has great depth and is reducible to the finest degree. There are no rocks, hardpan or alkali—just easy-to-work loamy soil.

Nuevo ranchers have been producing $300 an acre crops off of $250 an acre land. Here is land that quickly pays for itself. Olives, apricots, walnuts and peaches are the principal tree crops. Interculture is highly profitable—black-eye beans, onions, potatoes, berries, rhubarb, tomatoes, peppers and peanuts grow successfully in this soil.

Write or call for our Salesman's Manual, which answers 120 questions about Nuevo Ranch—also large illustrated booklet containing testimonial letters. Both booklets are free.

The packing plant on the Nuevo Ranch will contract with Nuevo ranchers for Nuevo grown products before seed is planted.

The JAMES R. H. WAGNER Co.

401 Realty Board Bldg.,
631 So. Spring St., Los Angeles.

Long Beach Office: 23 Locust Ave. Phones: 60478 Main 2875 Santa Ana Office: 402 N. Sycamore St. Rossmore Hotel

Stylish—Roomy—Easy Riding

With Fine Driving Qualities

You will like the look of the new Elcar models. The designs are original, different and strikingly graceful. The high-class paint work insures **lasting** beauty. Comfort and roominess are given special attention. Drive all day and you won't be cramped. Easy riding whether fully or partially loaded. Plenty of speed—abundant power for the hard pulls. The steering is the easiest—the control the simplest—the motor responsive and flexible.

ELCAR

Reliable quality is a certainty in the Elcar. We learned to put in quality years ago, when building cars selling up to and above $3,000. We give exceptional value in these **quality cars at popular prices** — each model large and good enough to fulfill any motor car requirement.

Don't think of choosing until you have seen the Elcar. Ask for nearest dealer's name, if you don't know him.

Brief Mention of Elcar Points

Four-cylinder models, 37½ horsepower at 2,100 r. p. m. Six-cylinder models, 40 horsepower at 2,100 r. p. m. Two unit electrical system. Long wheel base, 116 inches; road clearance 10½ inches. Full floating rear axle with spiral bevel driving gears. Timken Roller Bearings front and rear. Double universal drive; tubular propeller shaft. A wonderfully easy riding semi-elliptic spring suspension. Roomy and comfortable bodies of beautiful design and durable finish; new "Cathedral Pipe" upholstering. Equipment complete, even to motometer.

Catalog on Request

Write for catalog illustrating and describing the **Six New Elcar Models** — gladly mailed to all interested.

Elkhart Carriage & Motor Car Company
C-804 Beardsley Avenue Elkhart, Ind.

This Saw Cuts 25 Cords of Wood in One Day

Write for our booklet, "How Dan Ross Cuts 40 Cords a Day." It is absolutely guaranteed—hundreds in daily use. Delivered anywhere in the U. S. A. only.

$165 **Wade's Gasoline Wood Saw**
4 H. P. Engine (Portable)

This wonderful invention does TEN TIMES the work of TWO MEN in the woods. With it you can make money out of your wood simply through the immense saving in time and labor. One man can handle it on a log and two can move it from log to log. *Will cut a 40-inch log in five minutes.* Write us today.

R. H. WADE & CO. SINCE 1865
345 Hawthorne Ave., Portland, Ore.
910 N Howard St., Spokane, Wn.

The powdered mica in Mica Axle Grease keeps the spindles smooth, resists wear and pressure, and makes the grease last twice as long. Mica Axle Grease would still be good axle grease without the mica. But the mica makes it better. Get a can from your dealer today.

STANDARD OIL COMPANY
(California)

MICA AXLE GREASE

The Farm Car

Learned the Game

I OVERHEARD a conversation between two auto enthusiasts the other day and one of them told how a friend of his had prepared himself before buying an auto. "My friend Smith went to work for an auto company and repair shop and stayed by it for two weeks without pay."

"What did he do that for?"

"Well, it was a pretty wise method. His aim was to get on to the tricks in making repairs and to learn all he could about automobiles, and I tell you he got his eye teeth cut."

"How's that? Tell me all about it."

"Well, you know Dr. Jones. Well, Doc hasn't much knowledge of autos and he got stung good and proper, but he doesn't know it yet. He can run his machine all right when it is in good working order, but when it gets anything the matter with it, he seems to be up against it at once. It was while my friend was working his apprenticeship that Doc brought his machine in one morning and wanted it overhauled so it would run. They told my friend to see if he could see anything out of fix. The boss had told the doctor that as soon as they discovered what was wrong they would call him up and tell him when he could get his car. Well, pretty soon this apprentice reported nothing wrong, except that it was out of gasoline. In a few hours the boss telephoned Doc that he could call the evening of the next day and get his car."

The charge was $8.65.

Do you see the point? If Doc had known anything about autos he would have saved $8.65 that time and, no doubt, many other times. The chap who worked for nothing that he might learn the "ins" and "outs" of the automobile shop and the picking up of practical points before buying a car was going in the right direction. This incident points out the importance of knowing your auto.—S. T

Tractor Road-Making

A CONSIDERABLE reduction in costs of road making is effected by the use of tractors. J. M. Hill of Stockton is responsible for the following statement:

"In July last, I sold a 75 horsepower caterpillar to Lane county, Ore., a 12-foot Russell-Mogul grader, a scarifier and a 11½-foot land leveler. They also bought four 8-yard wagons which they are using to haul crushed gravel for hard surfacing the roads. Without going into long details, I wish to say that they reduced their costs of hauling from 65 cents per yard by auto truck to 14 cents by tractor, on an average haul of nearly three miles.

"The county court has been so much impressed with the economy and efficiency of this outfit that in November they gave me a duplicate order which will be delivered in January."

The Tractor in the Mud

MANY a tractor has been hauled out of a sink hole, when the wheels have been in the mud to the axle, by the aid of a rope. Jacking up the machine so that the rope can be wound a few times round one of the drive wheels, with the other end secured to a solid post of a tree, it will be surprising what wonders can be accomplished. If one wheel tends to slip, the differential should be locked.

In this manner the tractor will be enabled to pull itself out of seemingly impossible places.

Tire Inflation

IN your anxiety for results do not rush at the tire madly and begin pumping for dear life. The tire should always be inflated slowly at first.

People differ in their ideas as to the proper pressure, but it is a good rule to inflate the front tires to a pressure equivalent to seventeen or eighteen times their cross section and the rear tires to a pressure equivalent to twenty times their cross section. Tires on front wheels, say 34x4 should have from 68 to 72 pounds pressure, while on the rear wheels the pressure should be about 80 pounds. Reinflate the tires occasionally, as the inner tubes are permeable. Fifteen or twenty per cent of the pressure is lost when the rubber is heated to 80 degrees or more.

Often the pressure gauge on your pump does not show an accurate pressure in the tire on account of the friction of the valve inside of plunger

Nevada's Safety Road

A THOUSAND motorists and other good roads workers are banded together in Nevada to provide comfortable travel for motor tourists wise enough to take the Overland trail. Besides, they are working in a practical and optimistic way that means business.

This route crosses the State through Tecoma, Montello, Cobre, Wells, Deeth, Halleck, Elko, Carlin, Beowawe, Battle Mountain, Golconda, Winnemucca, Mill City, Imlay, Oreana, Lovelock, Wadsworth, Reno and Verdi. About half of its 455 miles is through desert land, but the longest stage between supply stations is only 45 miles, and this stretch has three points where water can be obtained.

The road follows closely along railroad, telegraph and telephone lines the entire distance across the State, being only 10 miles away from a railroad at the farthest point.

This one feature means a great deal toward removing the dread of desert travel, as the average motorist is not yet too independent to welcome an occasional opportunity to wave at railroad travelers on a drive of nearly 500 miles across a country necessarily rather monotonous and even lonely in many respects.

And if you do happen to have a breakdown—as transcontinental tourists sometimes do—it is rather pleasant to feel that a telephone or telegraph station is within reasonable reach.

Then there is the need of water, which is supplied in plenty all the way across Nevada along this road. It is called the "Safety First Road," and a big signboard near Reno announces, "This Road Goes Through Civilization."

Stop, Look, Listen!

WHEN you come across a crossing, here's a simple rule for you:

Stop and look and listen, and be sure
that you can view
The track from every angle and that
nothing is in sight,
Then start again your journey, and
you'll cross the crossing right

There was a man who fancied that
by driving good and fast
He'd get his car across the track be-
fore the train came past
He'd miss the engine by an inch, and
make the train hands stare
There was a man who fancied that
there isn't any more

WATERLOO BOY TRACTOR

A 12-25 two-speed, one-man Tractor. Big Power, Big Service, Big Value, Low Operating and Upkeep Costs for Field, Orchard and Road Service. Catalogue on Application.

W. L. CLEVELAND CO.,
208 North Los Angeles St.
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At absolutely no expense to you, we will mail, upon request, complete data of any new or second hand auto truck or tractor within the State. Tell us what you need and the price you wish to pay. All machines guaranteed as represented.

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Phone Prospect 8125. 1772 Green St.
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Guaranteed Vulcanizing
Send in Your Tire or Ask for Price List.
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GALLSTONES (No Oil) **AVOID OPERATIONS** If you have Gall-stone, Pains or Aches in Stomach, Back, Side or Shoulders; Liver Trouble, Stomach Misery, Dyspepsia, Colic, Gas, Biliousness, Sick Headache, Constipation, Piles, Catarrh, Blues, Jaundice, or **APPENDICITIS** **FREE**
Send for Home Treatment Medical Book
GALLSTONE REMEDY CO., Dept. M-15 . 218 S. Dearborn St., CHICAGO

LEPAGE'S GLUE HANDY TUBES. WILL MEND IT

CUTTER'S
Blackleg Filtrate
and
Blackleg Tissue Aggressin

The New, Safe and Efficient Agents for Protecting Calves from Blackleg.

Cutter's Blackleg Filtrate positively protects against Blackleg.

Cutter's Blackleg Aggressin, made directly from animal tissues, affords even greater protection.

Neither the Filtrate nor the Aggressin can possibly produce Blackleg in even the most susceptible animals.

These products will probably never supplant Blackleg Vaccine, still, under some conditions, they have advantages that should be known to every stockraiser.

Write us for full information regarding them.

THE CUTTER LABORATORY,
Berkeley, California.
"The Laboratory that knows how"

A Cotton Seed Experiment

IN 1916 a group of farmers in the Salt River Valley, Arizona, was supplied with carefully bred seed of Pima cotton, a new variety of the Egyptian long staple type which had been developed by the Department of Agriculture on its experiment farm in that section. Another kind of Egyptian cotton, the Yuma variety, was already being grown in the community. For this reason it was necessary to plant the Pima seed only in fields which were sufficiently isolated from Yuma cotton to prevent cross-pollination by the agency of bees and other insects which might fly from one field to another.

The farmers who grew the new cotton belonged to a co-operative association known as the Tempe Cotton Exchange, which owned and operated its own gin. Most of the acreage controlled by members of this association was planted to Yuma cotton in 1916. Consequently, to avoid mixing the seed of the two varieties, the gins were stopped and the entire plant was thoroughly cleaned out before each run of the new variety. The Pima seed was sacked as it came from the delivery pipe and each sack was carefully sealed and labeled.

Enough Pima seed was obtained to plant in 1917 a solid block of about 6500 acres. Of this total, about 2500 acres were located in the neighborhood of the fields of the Yuma variety or on land which, having previously grown Yuma cotton, was likely to contain volunteer plants of that variety. The product from all such fields was turned over to another gin and the seed was sold to the oil mills. The Tempe Exchange gin handled only the seed cotton from the 4000 acres which could be relied upon to produce thoroughly pure Pima seed.

The Tempe Exchange offers this seed at an advertised price based upon the oil mill value plus the cost of handling.

It is estimated that the supply of pure Pima seed will suffice to plant the entire cotton acreage of the Salt River Valley in 1918. The seed will be sold only to bona fide growers and, preferably, in large lots to organized groups of growers. It is also understood that the seed will be delivered for planting only in those sections of the Southwest which experience has shown to be thoroughly adapted to this type of cotton. No portion of the main cotton belt has been found to be suitable for Egyptian cotton and no seed will be sold for planting in States east of Arizona.

Morals of Our Soldiers

By General John J. Pershing.

THERE has never been a similar body of men to lead as clean lives as our American soldiers in France.

They have entered this war with the highest devotion to duty and with no other idea than to perform these duties in most efficient manner possible.

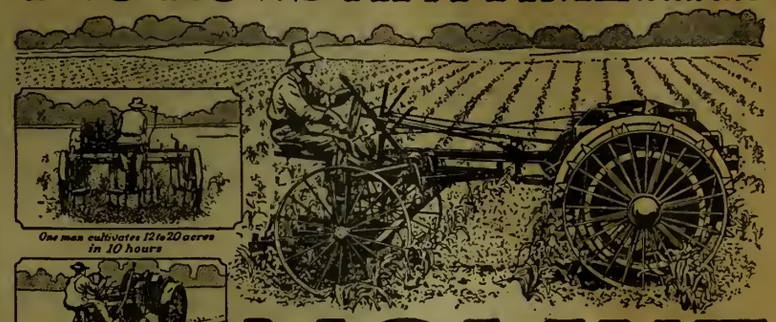
A rigid program of instruction is carried out daily with traditional American enthusiasm.

Engaged in healthy, interesting exercises in the open air with simple diets, officers and men, like trained athletes, are ready for their task.

Forbidden the use of strong drink and protected by stringent regulations against social evils, and supported by their own moral courage, their good behavior is the subject of most favorable comments, especially by our allies.

American mothers may rest assured that their sons are a credit to them and to the nation, and they may well look forward to the proud day when on the battlefield these splendid men will shed a new luster on American manhood.

ONE MAN CULTIVATES TWO ROWS AT A TIME *with the*



One man cultivates 12 to 20 acres in 10 hours

One man plows 5 to 8 acres in 10 hours

One man lists 12 to 20 acres in 10 hours

One man harvests 15 to 25 acres of grain in 10 hours

One man harvests 8 to 10 acres of corn in 10 hours

Equipped with rear carrying truck for odd jobs

MOLINE UNIVERSAL TRACTOR

"It Solves the Farm Help Problem"

More time is spent in cultivating than any other single operation. Sixty per cent of the crops grown on most farms are planted in rows which require cultivation.

If one man is to farm more land than ever before, he must also cultivate more. With the Moline-Universal Tractor one man cultivates two rows at a time and does it better, quicker and cheaper than with horses.

The Moline-Universal Tractor has ample clearance to straddle the corn row at all stages of growth. The operator sits on the cultivator in line with the right drive wheel of the tractor—not directly behind the tractor. This gives a clear view of the rows ahead. By keeping the right wheel of the Moline-Universal a certain distance from the outside row the whole outfit will go properly. For dodging individual hills the cultivator gangs are easily shifted by the operator's feet.

But cultivation is only one of all the farm operations which the Moline-Universal can do. It is light, but has more than enough power to pull two 14-in. plow bottoms, because all its weight is available for traction.

The Moline-Universal isn't the kind of a tractor that will do your plowing and seed bed preparation and then rest while your horses do the planting, cultivating and harvesting. It works to full capacity throughout the entire year with the greatest speed and economy.

Your Moline-Universal is ready now. Write today for further information and name of your nearest Moline dealer.

Address Department 48

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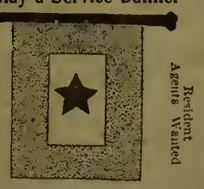
Be Patriotic! Display a Service Banner



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Genuine Eagle hunting. Extra strong and will resist the various changes of the weather.
2x3 ft. $1.75.
Residence size $1.25
Postage paid on mail orders.
We make American Flags all sizes.
AMERICAN and ALLIED FLAGS made to order.
Resident Agents Wanted
Service Banner Supply Co.
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Perfection Garden SEEDER

Will seed all kinds of small garden seed. It is especially adapted for hothouses and hotbeds. It will seed radishes, lettuce, cabbage and tomatoes for plants. One man with a Perfection Drill and Seeder can do as much seeding as five or six men would do in the same time by hand. It avoids too thick seeding with the annoying, time-wasting thinning that so often occurs in hand seeding. Soon pays for itself in seed saved. The little wheel operates a disc in the hopper, dropping the seed evenly. Different size discs are used for different size seeds. The little wheel runs on a board and the thickness of the board gauges the depth of the seeding. Expert horticulturists say the **Perfection Garden Seeder** marks the only improvement made in the past twenty years in a hand seeder and drill. It is within the reach of everyone. Sent postpaid for $2.00; weight 1½ lbs.

Send for circular to the
OSMUNDSON SPADE MFG. CO.
Perry, Iowa

No matter what you have to sell, advertise it on the Farmers' Classified Market Place. Only 3c per word.

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If so, you should consider the advantages offered by the Salt Lake Route, with its excellent service of two Daily Limited Trains solid from Los Angeles to Chicago via Salt Lake City and the Union Pacific. Any point East is quickly reached via this route. Let us give you full information at any office.

Salt Lake Route Is the Way!

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GROCERIES
DIRECT TO YOU

Order by Mail
Send for Price List

A Few of Our Specials

Fancy Eastern Bacon, guaranteed, per lb. 44c
Fancy Burbank Potatoes, we guarantee them, per 100 lbs. $2.00
Fancy Japan Rice, good and clean, per lb., 7c; 14 lbs. $1.00
Broken Coffee; try it, per lb., 20c; 5 lbs. 1.00
Macaroni or Spaghetti and assorted 20-lb. box $1.60
Good Cove Oysters, good grade, 2 cans, 18c; per doz. 1.08
Crytsal White Soap, per bar, 5c; 21 for 1.00
Carnation Milk, 6 cans 75c; per dozen $1.50
Royal Baking Powder, 1 lb. can. .39
Pure Cream Flake Rolled Oats, 15 lbs. $1.00
Long Grain Unpolished Rice, 5½ lbs., 50c; 11 lbs. $1.00
Try our Eastern Sugar Cured Picnic Hams, weight 6 to 8 lbs. each, per lb. ..... .25
Cocoa, Ghirardelli, ½-lb. can, ea. 20
Chocolate, Ghirardelli, 5-lb. can each 1.25
Codfish, best white and boneless per lb. ..... .17

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BUILD your own sidewalks, foundations, floors, watering troughs and other concrete jobs. No need to wait for a contractor and pay high wages to get this work done. Do it yourself, economically, efficiently—with a

BERGLAND CONCRETE MIXER

Turns out a perfect batch—one a minute—enough in an hour to build a 40 ft. walk. Hand or power operated. Centralized transmission — no power wasted. Barrel works on rollers—minimum friction. Strong angle iron frame. Unlimited guarantee. Low priced.

Write today for illustrated folder

Bergland Concrete Mixer Co.
413 State St.
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Weighs less than 200 lbs.

White and Brown Leghorn Chicks, guaranteed strong and vigorous, and bred for large egg production. Thoroughbred stock. Price $12 per 100; reduction by the 1000. Eggs, $1.50 per setting. Stock for sale.

I use and sell Pioneer Incubators and Brooders. There are no better machines made. Prices reasonable. Write for particulars.

JAMES D. YATES,
Poultry Judge, Modesto, Cal.

Poultry for Profit.

Black Leghorns

By Mrs. R. H. Marshall,
Pine Grove Ranch, La Fresa, Cal.

BLACK LEGHORNS were one of the most popular breeds thirty or forty years ago, but were gradually pushed to the background by newer varieties of all classes. However, you can't keep a good bird submerged very long, and now they are in the ascendency again. English breeders prefer them to all varieties of Leghorns. Many Eastern breeders have large commercial farms stocked with this breed to the exclusion of all others. As these black birds are absolutely new to the Pacific Coast, I will endeavor to picture them to you.

They are of pure Italian origin and were really the foundation of all Leghorn varieties that have followed since, the first importation to this country being made in 1872 from Genoa by a breeder in New Haven, Conn. The first specimens were black, black with brown and black with white, but by careful breeding the beautiful bird of today has been evolved.

They have not been crossed with Black Minorcas as is erroneously supposed by some, having nothing whatever in common except color of plumage, which is lustrous black with a green sheen. Type and shape are strictly Leghorn; combs single, finely pointed, scarlet in color; earlobes in pure bred birds snow white; legs a rich yellow, yellow with slate markings or slate shanks with yellow feet. Birds developing dark colored legs should not be used for breeders except in cases where some especially fine point possessed by them wants to be emphasized.

They are fine all-the-year-round layers of large white eggs and many of them; they are light eaters when confined and hustlers if allowed to range, always trim and clean, no matter what the soil or weather, wonderfully vigorous, seemingly immune to colds and the countless poultry diseases. The eggs run from 95 to 100 per cent fertile and the chicks are so hardy that they thrive under the most adverse circumstances.

I have given you a brief summary of the Black Leghorns and hope your interest has been aroused. With the co-operation of a very prominent Eastern breeder, who won all the main prizes at Madison Square Garden, Chicago and Boston, we are endeavoring to get this variety better known on the coast. This breed is

Sprouted Oats for Hens

GIVING the hens once a day all the sprouted oats they want to eat, which is about a square inch of sprouts, grain and roots, enables one to reduce the grain ration about one-third and thereby effecting a saving in highpriced grain.

It is remarkable how sprouted oats influence the laying of the hens. A change in this respect can be noticed within a few days after sprouted oats have been fed.

Plea of Oregon Poultrymen

OREGON poultrymen want to help Uncle Sam win the war by growing more poultry and feeding less wheat as he requests them to do, but they also say that they need a little help in return. The Oregon Poultry Producers' Association at the last O. A. C. farmers week passed resolutions to this effect and sent copies to headquarters at Washington.

They have been asked to double the production of poultry and eggs during the coming year, and are willing to do so whether they make any money or not. They are asked to use but 10 per cent of wheat in their feeds, and this is where they need help. Corn, barley, oats and kaffir are the usual substitutes for wheat, but corn cannot be had at all at a fair price, and the other grains are scarce and high and going higher.

The Oregon poultrymen want to get corn prices fixed at a reasonable figure and supply placed on the market.

The Government has been petitioned to increase the number of eggs in army rations in the United States, to help offset the high grain cost as well as save red meat for shipment to the allies.

Use Fresh Eggs for Hatching

IT IS generally agreed that the fresher the eggs the better the hatch. But poultrymen are not always so situated that they can have strictly fresh eggs when they are ready to incubate.

Equally true is the old-time observation: "The older the egg the weaker the germ." A hatch made up of old eggs will show that the germs perished at different stages of incubation, running from a few days to the close of the hatch, and those chicks that do hatch do so very weakly and slowly, extending the period several days over the allotted time of twenty-one days.

In other words, the fresh egg will at least hatch on time, and in many cases a day or two before time. The chicks will be strong, as a rule.

Practically, this condition will hold good for a week, but after that time the percentage of deaths in the shell, dead germs, and weak, puny chicks will increase as the eggs increase in age before being set.

The partial open-front poultry house is conceded to be the best type for most sections.

Every cellar of vegetables is a trench of food preparedness.

Tells Why Chicks Die

E. J. Reefer, poultry expert of 377 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent of all chicks hatched and cures white diarrhoea over night. All poultry raisers should write for this valuable free book.—Adv.

Beekeeping Pays

Beginners in Beekeeping and Beekeepers of experience will find they can obtain from the Apiary Department of The Diamond Match Company the finest quality of Beekeepers' Supplies at prices as low, or lower, than from any other manufacturer in the United States.

The Apiary Department maintains a constant excellence of product and offers unsurpassed service.

It will pay you to write for their catalogue and, if a beginner, for "Cottage Beekeeping." Both will be mailed free.

The Diamond Match Co.
(Apiary Dept.)
Chico, California.

THE 1 ORIGINAL CHEMICAL
Indoor Closet

30,000 SOLD—FIFTH YEAR

More Comfortable, Healthful, Convenient

Eliminates the out-house, open vault and cree-pool, which are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

ABSOLUTELY ODORLESS
Put It Anywhere In The House

The germs are killed by a chemical process in water in the container. Empty once a month. No more trouble to empty than ashes. Closet absolutely guaranteed. Guarantee on file in the office of this publication. Ask for catalog and price

ROWE SANITARY MFG. CO. 2203 6th ST., DETROIT, MICH.

Ask about the Ro-San Washstand—Hot and Cold Running Water Without Plumbing

Produce
Healthy, Vigorous Chicks by Feeding

"Golden Eagle Special Chick Food"

20% Cracked Wheat Included

Golden Eagle Milling Co.
Petaluma California

Try COULSON'S EGG FOOD
FOR GREATER EGG PRODUCTION
FULL PARTICULARS IN FREE BOOK
"CHICKENS FROM SHELL TO MARKET"
Coulson Co.
PETALUMA, CAL.

EGGS AND CHIX

Eggs and day-old chicks for sale. R. I. Reds and Barred Rocks, eggs $14 per 100. S. C. White Leghorns from trap-nested stock, eggs $17.50 per 100. Our S. C. White Leghorn cock took first prize at the Los Angeles Show. Address THESSALY FARM, Mr. and Mrs. W. V. S. Webster, Props., R. F. D. 1, 1878 Junipero Ave., Long Beach, Cal.

Baby Chicks

From Forney's Famous Heavy Laying Strain of SINGLE COMB WHITE LEGHORNS; $14 per 100; $65 per 500; $120 per 1000.

John F. Forney Kingsburg Cal.

QUALITY
SANDERSON
RABBITS
NEW ZEALAND REDS

First—San Francisco, Los Angeles, Kansas City, Mo.; St. Louis, Mo.
EAGLE ROCK, CALIF.

Wonderful Peas

IN these trying times, when the Government is calling upon every farmer, gardener or soil tiller to do his best to multiply the available food supply to win the war, every agriculturist's aim should be to plant the best only in seed lines.

The protein constituent is so vital to human nourishment that the pea family is largely drawn upon. The numerous varieties of these also make it difficult to select the most adaptable in many ways. All agree, however, that an extra sweet, tender, green-colored, wrinkled variety that is hardy and prolific and that does not require brushing is the very best.

Such a one, after nearly a half century of gardening, I find in the Golden Potlatch or Full Dinner or Beefsteak Substitute names attached to it by its various friends.

My attention was called thereto by a Swiss gardener at Sweet Home, Oregon, in 1915, who sent me a few pounds of the seed. Their extra green hue, large size, sweetness and tenderness, when masticated raw, won my immediate admiration, while the trouble of brushing being minus gave another point of value.

My friend said he never took the trouble to can them, because when soaked over night, well cooked and garnished there was but silght difference between the ripe seeds thus handled and the canned product, or even those fresh from the vines. His judgment therein has been largely verified by others, my own included.

So far as I can learn, it has been grown in but few localities on the Pacific Slope, but everywhere it challenges unqualified admiration. An Atlantic Coast catalog refers to it as "the pea that market gardeners are going wild over."

Of sturdy, bushy growth, 12 to 20 inches high, foliage extra large, coupled with larger pods, often borne in pairs on a single stem, containing from 7 to 11 giant peas, the extra sweet and tenderness apparently crystallizing in the ripe seed that present a glazed surface—relishable raw—bespeaks their unquestioned superiority.

When hills of them I had planted—alternating with potatoes in the row—were well set with pods and blossoms, other shoots, sometimes as high as five, burst out from the parent stem near the ground surface, and were soon laden with fruit promise, which our prolonged drouth cut short. Others on the ground where moisture was ample sent up new root sprouts when peas were ripening, giving a second crop of peas for Thanksgiving.

Desiring to further test their hardihood, I planted several rows in August, 1917, with winter onion sets, which have survived many hard freezes and thaws, promising a very early spring crop.

They shell out readily, keep well and in this latitude seem immune from weevils.—E. E. Martin, Bangor, Wash.

Life of Trees and Bushes

Apple	25-40	years
Blackberry	6-14	"
Currant and Gooseberry	20	"
Peach	8-12	"
Pear	50-75	"
Plum	20-25	"
Raspberry	6-12	"
Strawberry	1-3	"

We should eat all we need, but should eat wisely and without waste. We can do this by buying less, by buying seasonable supplies, by serving smaller portions, by using poultry, game and fish in place of beef, mutton and pork, by using cornmeal and other cereal flours in place of wheat flour and by using less sugar.

KNOCKED OUT THE FIRST ROUND

NEW LIBERTY

In the science of ECONOMY and EFFICIENCY, the NEW LIBERTY brooder stove has KNOCKED COAL FLAT. Don't look at COAL, ENGINE DISTILLATE, COAL OIL or any fuel ever used for brooding purposes. They are entirely too EXPENSIVE, UNRELIABLE and DANGEROUS when compared with the FUEL USED with this wonderful new LIBERTY brooder stove. It has jumped years into the future and solved BROODING TROUBLES and PROBLEMS that have never been solved before. SAY: Will you continue to DONATE your money to ROCKEFELLER and the COAL BARONS in the operation of that ANTIQUATED brooding system? Don't you think you should raise a better per cent of chicks? Why not reduce that FUEL BILL 60 per cent or more, with far greater SAFETY and BETTER CHICKS? DO IT NOW. Get a NEW LIBERTY BROODER STOVE and donate the MONEY SAVED in FUEL, BETTER CHICKS RAISED and SAFETY, to the RED CROSS or stick it in your OWN POCKET and listen to 'ER JINGLE—KRESKY'S made it POSSIBLE—IT'S up to you. Get our BROODER STOVE BOOK NOW—It's free. It tells you all about it.

PRIDE OF PETALUMA BROODER STOVE FACTORY

PETALUMA J. E. KRESKY CALIFORNIA

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FEED OUR BALANCED RATIONS

The Home of Co-operative Dry Mash

POULTRYMEN'S CO-OPERATIVE MILLING ASS'N.
LOS ANGELES, CALIFORNIA.

700 Hens Laid an Average of 195 Eggs in 12 Mos.

This is a marvelous record for such a big flock, but this is the actual report made by a Southern California poultryman (name on request). The big egg production was due to feeding P. C. A. Dry Mash, a balanced ration, made by poultrymen for poultrymen. P. C. A. Dry Mash is scientifically compounded, is superior in quality, is all feed—no waste—and is being fed by more than a thousand poultry raisers in California alone. It is rightly proportioned, containing the correct amount of protein, fat, carbo-hydrates, ash and fiber for biggest egg production. P. C. A. Dry Mash is an absolute success. It is a dependable mixture at a minimum cost. It is not an imitation. It is the original, the genuine, correctly balanced ration for laying stock. The directors of this firm are poultrymen of wide experience, owning large flocks of 20,000 hens and pullets, all big producers of eggs by feeding P. C. A. Dry Mash. So popular has P. C. A. Dry Mash become that a number of large poultry raisers are buying our feed in car lots. Write for catalog, folders, circulars and prices. Mention Orchard and Farm when writing.

We also manufacture Co-Operative Scratch Feed, Chick Feed, Buttermilk Mash, Chick Mash, Growing Scratch Feed and Pigeon Feed. We also make one of the best incubators made today. Write for Catalog B.

Poultrymen's Co-Operative Milling Association
1516 Industrial Street,
Los Angeles, California.

SEEDS

Our 1918 CATALOG

of Seeds, Plants, etc., is ready for you. Write for it today.

Morris & Snow Seed Co.
439 South Main St.
Los Angeles, Cal.

Attention Rabbit Breeders!

The next three papers of the Southern California Commercial Giant Breeders' Association on hutches are worth $6.00 to every breeder. Free with each $1.00 membership.
H. A. Sanderson, Sec., Eagle Rock, Cal.

THE "BOSS" TREE PROTECTOR

Made of Yucca Palm

Is cheap, durable and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frosts, sunburn, grasshoppers or dry winds. Can be easily removed, will last for years. Send for samples. Ask your nurseryman for them.

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	Per 1000
10 in. long, 7 in. wide	$10.00
12 in. long, 7 in. wide	11.00
14 in. long, 7 in. wide	12.00
16 in. long, 7 in. wide	13.50
18 in. long, 7 in. wide	16.00
24 in. long, 7 in. wide	18.00
30 in. long, 7 in. wide	21.00

YUCCA MANUFACTURING CO.,
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TREE PROTECTORS

That Really Protect

Fitted with Galvanized Wire Ties that go all the way around the tree.

PRICES PER THOUSAND

Seven inches wide.

10 inches long	$9.00	18 inches long	$12.50
12 inches long	9.50	20 inches long	15.00
14 inches long	10.50	24 inches long	17.50
16 inches long	11.50	30 inches long	20.00

See your Nurseryman or write us for Discounts and Free Samples.

ANGELO & SON, Mason & Bay Sts., San Francisco.

Dealers—Write us today for our Sales Proposition

ECZEMA

Also called Tetter, Salt Rheum, Pruritus, Milk Crust, Water Poison, Weeping Skin, etc.

DR. CANNADAY
Eczema Specialist for 15 Years.

For fifteen years I have been treating one disease alone, ECZEMA. I have handled over one million cases. I do not pretend to know it all, but I am convinced the disease is due to an excess of acid in the blood, and closely related to rheumatism and cancer. **This acid must be removed.**

Eczema is called by some people Itch, Tetter, Salt Rheum, Pruritus, Milk Crust, Weeping Skin, etc. I am fully convinced Eczema is a curable disease, and when I say it can be cured, I mean just what I say—C-U-R-E-D, and not merely patched up for a while to return worse than before. It makes no difference what other doctors have told you, or what all you have tried, all I ask is just a chance to prove to you that this vast experience has taught me a great deal that would be of help to you. If you will write me today I will send you a free trial of my mild, soothing, guaranteed treatment that will do more to convince you than I or anyone else could in a month's preaching. It's all up to you. If you suffer any more with eczema and refuse to merely write to me for free trial, just blame yourself. No matter where you live, I have treated your neighbors. Merely dropping me a postal today is likely to give you more real comfort in a week than you ever expected to enjoy again. Do it right now, your very life may be at stake.

J. E. CANNADAY, M. D., D-1 Court Bk., Sedalia, Mo.

References: Third National Bank, Sedalia, or ask your banker to find out about me.

Send this notice to some poor sufferer from eczema. It will be a kind act by you.

Reliance Irrigation Meters

Eliminate guesswork and approximations and give a square deal to both water company and consumer. Read as easily as the watch you carry. No clocks, charts, pen or pencil. No supervision. Measures water in open ditch, gravity, pipe lines and gravity deliveries from pressure pipe lines.

Send for descriptive booklet, "The Water Watch."

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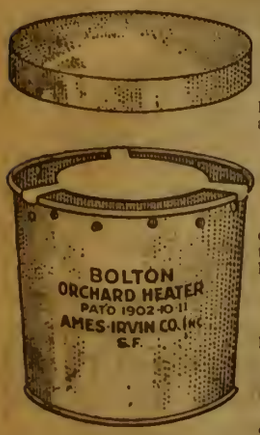
955 N. Main St.,
Los Angeles, Cal.



A Year of Hard Labor LOST
By an Hour of Frost!

More than one orchardist and truck gardener has learned this by hard experience! To make certain of a full crop, install the

"Bolton" Orchard Heater

Gives maximum heat, evenly distributed. Burns cheap fuel oil. Can be lighted quickly. Burns long time on one filling. No waste—you light only enough heaters to hold temperature above the frost point.

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Tells you how to save your crops from frost. Filled with valuable information for the grower.

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Irrigation Pipe, Orchard Heaters, Etc.
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For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

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Screw Casings Fittings and Valves Guaranteed For Pressure

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TESTED and GUARANTEED.
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Are You Going to Plant an Olive or a Citrus Orchard This Year?

Write for Catalog

Before you purchase your trees or make a final decision, send for Roeding's New Illustrated Catalog and Planter's Guide combined for 1918.

This book is more than a Catalog—it is an Encyclopaedia.

The information contained in this book on soils, their preparation, irrigation, etc., time to plant, selection of trees, planting, pruning, and other important details, are of inestimable value to anyone about to engage in horticulture. We invite correspondence from intending planters, and are always pleased to answer questions, and to give anyone the benefit of our many years' experience in the business.

Fancher Creek Nurseries
706 Holland Bldg., Fresno, Cal.

Out in the Orchard

Facts for the Fruit-Grower

Tobacco for Aphids

By O. E. Bremner,
County Horticultural Commissioner, Santa Rosa, Cal.

IT HAS been well established for a number of years that tobacco extracts or nicotine sprays are effective in the control of aphids and other soft-bodied insects. However, the most efficient means of application, as well as the most economic solutions to use, are problems with which we still wrestle.

During the past few years the Pacific coast has been waging an uphill fight against an increasing loss from the depredations of various forms of aphids, and perhaps the hardest attack has been against the apple trees, prunes, walnuts and pears also suffering greatly. The appearance of the pear-root aphis has spurred us to greater activities to find some remedy for root-infesting forms.

With this end in view, the soil around some old greening apple trees which were infested with woolly aphis was well saturated with a solution of "Black Leaf 40" at a strength of about one part of the solution to 1000 parts of water. Shortly before treatment the soil was spaded and the feeding roots were found to be white with woolly aphis, but today these trees are almost free from aphis and no solution for control has been used

The success of this experiment led us to carry on a larger one last season and in this case a plot of 30 apples and 270 old pear trees was used. This orchard when inspected by Mr. Weldon and myself a few years ago was badly infested with the pear-root aphis and woolly aphis. The soil is of a sandy loam texture and situated so as to be well drained.

Instead of using tobacco extract we used tobacco waste. Twenty-five hundred tobacco plants were grown, being set 12 inches by 3 feet 10 inches in rows on a plot of good ground. From the tobacco produced 555 pounds of cured leaf was sold at 20 cents per pound. The refuse was chopped and placed in trenches around the trees, 5 pounds being used for each tree. The first was applied in November, the rest toward the end of February and it was the last application that gave success, for it is extremely hard to find an aphid in this orchard today except on the eight trees where the tobacco was applied in November.

When it is not possible to grow tobacco, the waste from cigar factories can be procured very cheaply. Last year we bought it in bales at 1½ cents per pound f. o. b. San Francisco.

In one case this waste was used as a spray; it was soaked in the bale in 2000-gallon tanks, first at the rate of one pound waste to 4 gallons of water for 48 hours, then the same tobacco was put into another tank at the rate of one pound to 2 gallons of water for 4 days. A chemical analysis by the insecticide laboratory at Berkeley of the solution in the first tank, showed that it contained .02 per cent of nicotine or practically the same amount as a 1 to 2000 dilution of "Black Leaf 40."

The spray tank was loaded directly from the tanks and the solution used in combination with commercial flour paste jelly 6 pounds to 100 gallons, and atomic sulphur 10 pounds to 100 gallons. This combination not only cleaned the trees of aphis and red spider but also canker worms and tent caterpillars.

To Prevent June Drop

By J. Eliot Coit and Robert W. Hodgson.

JUNE drop of Washington navel oranges causes an annual loss of $1,225,000 to $1,750,000 in California and is the limiting factor in profitable navel orange production in many parts of the interior valleys of California and Arizona. The drop itself can be separated into two parts, that occurring from petal fall until the fruit is about an inch in diameter, and that occurring after that time The first part is much the more serious and is due to abnormal water relations which serve as a stimulus to abscission. The second part is less important and is due to the fungus Alternaria citri of wide distribution which is also the cause of black rot of navel oranges.

When we come to consider the prevention or control of June drop we find that there are two lines along which we may work. In the first place, it is entirely possible for many growers, who are so situated as to make it practicable, to modify environmental conditions, both above and below ground, sufficiently to reduce the extent and amount of the water deficits referred to.

In selecting a site for a navel orchard it is well to keep in mind the direction of prevailing winds, the relation of the site to extensive irrigated areas and to the degree of exposure to these influences. Fruit growers should accustom themselves to think of climate not only in terms of counties, great valleys and States, but also in terms of strictly local conditions.

A half acre of irrigated alfalfa isolated on the desert will exert a most profound influence on the climate a few yards to leeward and a few feet from the ground. Everyone is familiar with the coarse, rough appearance of oranges grown in fully exposed positions in the tops of the trees.

The reason why oranges borne on the inside of the tree are of smoother texture and thinner skin is because the environment inside the tree represents quite a different climate than that of the outside.

Gigantic Cherry Tree

THE largest and in all probability the oldest cherry tree on this coast is growing on a ranch near Coloma, Cal. The tree was planted in 1849 by F. Hollingsworth. Hollingsworth planted the tree on a small knoll, which afterwards received the name of Tunnel Hill.

The height of this cherry tree is about seventy-five feet, while it covers one-fourth acre of ground. The trunk measures five feet across at the base. There are six main branches, two of which are three feet, eleven inches in circumference. The others are slightly smaller.

The tree is of the Black Ox-heart variety. It is usually a faithful bearer and every spring it is covered with thousands of white blossoms. The cherries, when ripe, are nearly black. This year in particular the old tree had a generous crop. A twenty-foot ladder was employed in harvesting the fruit. Owing to the great height of the tree, much of the fruit was out of reach.

The owner, J. Papini, values the old tree not only for its faithful services, but for the many historical associations connected with it—Cecilia Papini.

SPRAY

Thoroughly, while you are about it. A "half done" spraying job means that you get only 50 cents where you might have had one dollar. Get a sprayer that Covers. That is the only kind you will find listed in our new

1918 FREE CATALOG

Send for it today. For 10c we will also include the handsome 94-page book "Why and How of Orchard Success."

It is a complete Spraying Guide.

FIELD FORCE PUMP CO., Dept. 8. Elmira, N. Y.

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FIELD FORCE PUMP CO. The Leader "OSPRAYMO" LINE OF SPRAYERS ELMIRA, N.Y.

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Perfect hearing is now being restored in every condition of deafness or defective hearing from causes such as Catarrhal Deafness, Relaxed or Sunken Drums, Thickened Drums, Roaring and Hissing Sounds, Perforated, Wholly or Partially Destroyed Drums, Discharge from Ears, etc.

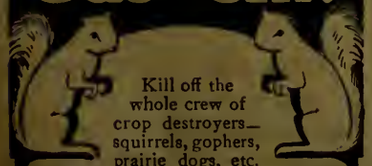
Wilson Common-Sense Ear Drums

"Little Wireless Phones for the Ears" require no medicine but effectively replace what is lacking or defective in the natural ear drums. They are simple devices, which the wearer easily fits into the ears where they are invisible. Soft, safe and comfortable. Write *today* for our 168 page FREE book on DEAFNESS, giving you full particulars and testimonials.

WILSON EAR DRUM CO., Incorporated • 274 Inter-Southern Bldg. LOUISVILLE, KY.

100 Progressive Pedigreed Everbearing Strawberries 90c. 200, $1.50. Prepaid. Pedigreed Nursery Co., Sullivan, Mo.

Gas 'em!



Kill off the whole crew of crop destroyers—squirrels, gophers, prairie dogs, etc.

Gas 'em with Carbon Bisulphide quickly, easily and economically.

One burrow of squirrels will destroy more grain than your family can save in fifty wheatless days. Remember—these ground pests cost the farmers of the Pacific Coast more than $6,000,000 last summer. So be forehanded—be truly patriotic—*conserve the seed in your fields.*

The University of California says: "From November until the end of February (the rainy season in California) the best way to attack the ground squirrels is to fill their burrows with gas from Carbon Bisulphide."

So too in other states! If the ground is full of moisture, whatever the month may be, Carbon Bisulphide is the best killer of squirrels, prairie dogs, gophers, etc.

A squirrel killed before March is worth a dozen killed later. Because—most young squirrels are born late in March or early in April. *So—gas the old squirrels now.* Write today for prices and interesting folder telling how Carbon Bisulphide—the profit-saver—works.

WHEELER, REYNOLDS & STAUFFER
624 California Street
San Francisco, California

Use CARBON BISULPHIDE

Placer County Peaches

By C. K. Turner,
Horticultural Commissioner, Auburn, Cal.

IN Placer County there are 5475 acres of shipping peaches in bearing, representing about 591,300 trees, ranging from 4-year-old trees to fully matured trees. These, with a crop that was estimated at 75 per cent of normal, gave last year (1916) 1,301,548 boxes, or about 1126 cars, that were shipped to market.

Figures are not available showing the average age of the trees, so that the figures just given may be somewhat misleading as to the bearing capacity of the trees. However, it may be stated that mature, vigorous trees will average from six to eight boxes to a tree, while 4-year-old trees will give from one-half to one box.

The varieties grown embrace practically all the commercial varieties from the early white peaches in the latter part of May to the Salways and other late peaches, which go to market up to the middle of October in a normal season.

In the order of their numerical importance, the Elberta is supreme, many solid cars of this variety being shipped in midsummer.

There is a large acreage in Triumphs, the earliest of our yellow peaches. Following these are Hale's Early, St. John, Crawford, Elberta, Lovell, Salway and other freestones.

Practically all our midsummer clings, Tuscan, Orange, McKevitt and others are wrapped and shipped to Eastern markets, and a considerable portion of the later clings, Phillips, Levi, etc., are also marketed in the same manner.

Biggest Prune Crop

WHEN the Lester Brothers of Santa Clara county, Cal., delivered their 1917 crop of prunes to the Prune and Apricot Growers Inc., it weighed nearly 900 tons. This is estimated to be the largest prune crop in the world. In drying their crop about 25,000 trays were used on three drying plants. The method of distributing the prunes on the driers as they come from the dippers is the same as that in use 30 years ago and is by means of trucks drawn by horses. This method is considered to be more practical than by the track and car method as it leaves the land clear for use in growing hay or some other crop until needed in the fall for drying.

The three brothers, Nathan, Will and Fred Lester, own and operate 500 acres of bearing prune trees. Their 1917 crop is estimated to be worth about $120,000. Tractors are used in orchard work and also in hauling the cured crop to the warehouse, where one tractor will haul four loaded wagons, aggregating about 30 tons each trip.

Rooting Up Almonds

THE forty-acre almond orchard of Thomas Gum, north of Chico, Cal., has been uprotted and the ground leveled and planted to wheat. The orchard, which is one of the oldest almond orchards north of Chico, being planted eleven years, failed for several years to render adequate return on the investment, and the owner figured that a few years of good wheat crop at the present prices would compensate him well for the change.

Because of the decreasing production of turkeys on farms, the business of raising turkeys on a large scale may develop into an important and interesting form of ranching. As yet, however, it is in its infancy and has been tried only in a more or less experimental way.

Perforated Tree Protector

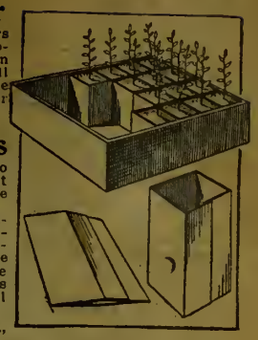
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

THE EXPAN MFG. CO., 935 East Central Ave., Redlands, Cal.



Ornamental Trees

We have for sale this season a magnificent stock of Fruit and Ornamental Trees, Climbing Plants, Shrubs, Palms and Roses. Fifty-two years in business.

Write for Illustrated Catalog and Price List

California Nursery Co.
NILES, CALIFORNIA

Half a Century's Western Experience behind each box

GIANT FARM POWDERS

STUMPING — AGRICULTURAL

For more than 50 years Giant Powders have cut the cost of western blasting. In all this time they have been constantly improved and adapted to western conditions by a western company. Naturally they make western land clearing easier, faster and cheaper.

Giant Farm Powders—Giant and Eureka Stumping—go further than ordinary dynamites. Farmers and orchardists find that they can do more and better work at less cost with Giant Powders. Hundreds write us that Giant brands "save money"—"give better results"—"have wider breaking power"—"shoot the roots"—and "are always uniform in strength and action."

Caution: Be sure you get the genuine Giant Powders, the product of the manufacturers who originated the name. Look for the Giant trade-mark. It is your only sure protection against imitations.

Send coupon (or postal mentioning this paper) for the big free book "Better Farming." It tells you scores of money-saving ways of doing farm jobs. Write for this gold mine of information today.

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Send me 52-page illustrated booklet "Better Farming." I am especially interested in (please check)

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When you Figure *it* all up —

you may find some of your cows are a liability instead of an asset. Why? Almost every cow can be a profitable producer if her system is working properly and she is free from disease.

Kow-Kure, the great cow medicine, is just what the average overforced milch cow needs. It works on the digestive and genital organs and puts the system in condition to prevent disease and produce properly. Also a sure remedy for Abortion, Barrenness, Retained Afterbirth, Scouring, Lost Appetite, Bunches and other common diseases.

Try Kow-Kure on your poor milkers—you'll find it makes good every claim; in many dairies it has turned losses into profits. Feed dealers and druggists sell Kow-Kure; 55c and $1.10 packages. Write for free treatise, "The Home Cow Doctor."

Dairy Association Co.
Lyndonville, Vt.

KOW-KURE

Sturges Milk Cans
Guaranteed Capacity

Easy to Keep Clean

MADE of highest grade steel plate—tinned and retinned after rivet holes are punched. Pure solder sweated into all inside seams, making surface smooth as glass. Sanitary to the finest degree. Guaranteed capacity—each Sturges Can is built to measure. Saves work in shipping—insures accuracy.

Sturges Cans are built with the experience of 50 years in making milk cans. Ask your dealer for them. Write for catalog No. 74.

Sturges & Burn Mfg. Co.
Established 1865
Chicago, Illinois

Don't Wear a Truss

BROOKS' APPLIANCE, the modern scientific invention, the wonderful new discovery that relieves rupture will be sent on trial. No obnoxious springs or pads. Has automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lies. Durable, cheap. **Sent on trial to prove it.** Protected by U. S. patents. Catalogue and measure blanks mailed free. Send name and address today.

C. E. BROOKS, 105 State Street, Marshall, Mich.

Live Stock

Orchard and Farm pays particular attention to livestock. Some of the foremost stockmen on the Coast contribute to its columns. If you, as a livestock raiser, know of anything of value to your brother breeders, don't keep it under your hat, but send it in to our Livestock Editor. Do this today.—Editor.

Situation Not Desperate

WHILE Orchard and Farm cannot go the whole length with Mr. D. O. Lively in his implied criticisms of the Food Administration, it is nevertheless true that the farmers have a grievance against the Government in the matter of the labor shortage which should have been fully supplied last year and which must be looked out for this year if we are to harvest all our crops.

As to livestock Mr. Lively is more optimistic. In his splendid review of the situation, printed elsewhere in this issue, he puts the possible failure of the cattlemen upon their lack of foresight in procuring better blood. This failure, of course, is inexcusable, and doubtless will not be repeated, as the average cattleman is paying more attention, year by year, to proper siring.

Another case of brilliant hindsight is seen in the matter of feed provision. If it is true, as declared by William M. Carruthers, the well-known stockman, that there are few range men that could not cut an abundance of wild oat hay and store it for starvation times, then it would seem that they are at fault to risk the losing of their stock in such dry weather as has prevailed during the past winter season.

Mr. Lively, in a recent letter to Orchard and Farm, urged the production of more sheep by farmers all over the State of California. He cited the instance of a Yolo county boy who had been quite successful in the sheep business on a small scale, and said that this same sort of success could be obtained by others, boys and men alike.

There is still a woeful lack of hogs on this coast, and where means can be provided to feed them without too much expense it would be difficult to find an industry where better returns might safely be counted upon.

As to goats, that business, though still in its infancy in California, has a very bright outlook. Judging from the number of inquiries received in the office of Orchard and Farm every day, it would seem that everybody is talking goats. If five per cent of those who are talking them should begin to raise them the goat population would be swelled enormously during the next few years. Well, it's a good safe business. Why not go into it if you have a bushy hillside that is good for nothing else or if you can acquire such a range cheaply?

Assuredly the livestock situation is anything.

Livestock in Idaho

THE Idaho livestock situation is having a revival of interest and reports are to the effect that all vacant land available for grazing and pasturing or raising feed for stock has been taken up and put under cultivation.

With the aid of government regulation of prices, more interest is being shown in pig clubs as shown in the recent stock show held at Lewiston, a keen demand for pure bred hogs being quite evident and there will be doubtless 600 to 1000 additional hogs which will show more than 15 per cent increase.

The allies are calling on us for more and more pork and we must furnish it to win the war. The allies' herds have been greatly depleted since the war and it will take years after peace to restore them to normal production.

A Wonderful Jersey

HAVING just completed her seventh official record under register of merit rules, Sophie 19th of Hood Farm not only establishes a record for the Jersey breed, but for all breeds when cumulative production is taken into consideration. Sophie's seven years' production exemplifies the outstanding characteristics of the Jersey breed—early maturity, persistency and longevity.

In her thirteenth year she has made 15,948 pounds of milk and 1059 pounds of butter which, added to her six previous records, gives her a total production in her seven lactations of 91,869 pounds of milk, or over forty-five tons, and 6600 pounds of butter, or more than three-and-a-quarter tons. She became champion cow of the Jersey breed on completing her fifth lactation, when she made 17,557 pounds of milk and 999.1 pounds of fat. This record has never yet been equaled by any other Jersey cow.

Sophie is not only a wonderful producer, but a most remarkable reproducer. Besides being a champion herself, she has produced champions. One of her sons, Pogis 99th of Hood Farm, is the sire of twenty-six officially tested daughters, whose average production for one year is 620 pounds of butter. Two of these cows are champions in the three-year-old and four-year-old classes.

Be Your Own Butcher

HOG killing on the farm, in spite of much encouragement given it in recent years, is not yet a general practice. The custom of buying meat from local stores or hucksters is increasing among farmers in spite of the fact that meat, especially pork, can be grown and cured at home for much less than the cost of purchased meat. These statements are made by animal husbandry specialists of the United States Department of Agriculture in a new publication of the department, Farmers' Bulletin 913, "Killing Hogs and Curing Pork."

Many farmers, it is said, will have their own meat supply for the first time this year. The publication just issued takes the farm butcher step by step through the processes of slaughtering, cutting up the carcass, lard making, curing, sausage making and smoking. It tells also how to make a small ice house which may be used not only for meat but for other perishable products.

This is the equipment needed for slaughtering: An 8-inch straight sticking knife, a cutting knife, a 14-inch steel, a hog hook, a bell-shaped scraper, a gambrel, and a meat saw. A barrel makes a very convenient receptacle in which to scald the animal. It should be placed at an angle of about 45 degrees at the end of a table or platform of proper height. The table and barrel should be securely fastened to prevent accident to the workmen during the scalding. A small block and tackle will reduce the labor of handling the animal.

Hogs can be killed for meat any time after eight weeks, but the most profitable age at which to slaughter is eight to twelve months. An animal in medium condition gaining rapidly in weight yields the best quality of pork. Hogs intended for slaughter should remain unfed for at least 24 hours or better 30 hours, and all the clean, fresh water they will drink should be provided.

"Good to the Last Drop"

CALVES relish and thrive upon Blatchford's Calf Meal, the milk substitute. They increase in size and weight rapidly; are healthy and vigorous, no indigestion—no scouring.

Blatchford's Calf Meal

should be used to push the calf forward to a grain diet. This important move is more essential now than ever.

Write for Booklet "How to Raise the Largest Calves at the Smallest Cost." If you raise any calves write for the booklet. It is mailed without cost.

BLATCHFORD CALF MEAL COMPANY, Dept. 118, Waukegan, Ill.
COULSON POULTRY & STOCK FOOD CO., Petaluma, Calif.
GERMAIN SEED & PLANT CO., Los Angeles, Calif.

SHORTHORNS

Paicines Ranch Company

offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves.

For prices and particulars, apply to

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HOLSTEINS

Have Ten Nice Marked High Grade Heifer Calves from Our Herds of Great Producers.

At $22 Each

Homestead Dairy Farm
Palmyra, Wisconsin

ASPINWALL POTATO PLANTER

The *FIRST SUCCESSFUL* potato planter. The only correct drop, *one-man, automatic* potato planter. Does *all* the work—*all* the time. *Needs no watching. Plants more acres per day*

SAVES EXPENSE OF EXTRA MAN

Attachments for peas, beans and fertilizer furnished when desired. Write for FREE BOOK containing valuable information on this important crop, also attractive folder illustrating the Aspinwall complete line of potato machinery—Cutters, Planters, Sprayers, Diggers and Sorters.

World's Oldest and Largest Makers of Potato Machinery

Aspinwall Mfg. Co.
638 Cable St.
Jackson, Mich.

Rose Crest Berkshires

The blood of such great sires as Masterpiece, Rivals, Champion's Best and others. None better on the Coast. I am offering at present 14 boars and 10 gilts farrowed in 1916, also fall pigs of both sexes.

Herd headed by Rookwood Baron 10th No. 152792 and Ames Rival 118 No. 217854.

For full particulars and prices address

F. L. HALL, Perris, California.

No matter what you have to sell, advertise it on the Farmers' Classified Market Place. Only 3c per word.

LIVE STOCK

Lively on Livestock

(Continued From Page 5)

capped somewhat by a lack of labor, but his requirements in that particular are less than the strictly crop producer.

The shortage of meat animals occasioned by the extraordinary marketing this year will be reflected in steadying prices.

With better blood in his breeding pen, the producer of livestock is assured of a profit. There has not been a time in the history of the livestock industry when the importance of good blood was as apparent as now. The high price of feed, the overstocking of the ranges and farms with scrub livestock, the increasing spread of prices between the pure bred, the good grade and the scrub is a combination which renders it imperative for the man who expects to stay in the business and succeed, to use pure bred sires.

The correctness of this assertion has been more clearly demonstrated during this season than ever before. California livestock men are further behind in this particular than those of any other State in the range country.

Too Many Scrub Sires

There are more scrub bulls and scrub boars in use in California than anywhere else in the livestock producing section of the United States. This statement can be modified as to boars but it can be added to, expanded and re-emphasized with regard to bulls.

In dairying and in beef breeding as well, the quality of the bulls used is a reflection on the intelligence and business qualifications of California livestock breeders that cannot be too often brought to public attention.

The pendulum is swinging over to the use of better bulls but its movement is slow.

The hope of the future of the livestock industry in California is in the use of better blood and with such use there need be no fear of the outcome.

Big Cattle Sale

THE Pacific Coast Hereford Cattle Breeders' Association will hold a combination sale at the University Farm, Davis, California, on Wednesday, April 10, 1918.

This sale will be made up of contributions of a number of the Hereford breeders of California and from States on the Pacific Coast. It is limited to 75 head, 40 head of which will be females and 35 head bulls. A plucking committee will pass on the merits of all the animals offered in the sale, thus guaranteeing to attending bidders absolutely worthy specimens.

The day following the Hereford sale there will be a combination shorthorn sale in San Francisco.

Fred Reppert, the well-known livestock auctioneer, will officiate in the box in both events.

There never was a time when good blood in livestock was as important as now.

Secretary Kinzer of the American Hereford Breeders' Association and a number of the prominent Eastern breeders have said they will be in attendance at the sale.

Shortage of wheat in France is becoming more alarming each week. Pastry is now classed as a luxury and the manufacture or consumption is now suppressed except on Sundays and holidays.

Feed the cull potatoes to hogs. Cook the potatoes thoroughly and mix with corn meal, shorts or bran. Cook more is a good addition.

Promising Guernsey Herd

OF THE leading dairy breeds, none have made more rapid progress toward popularity during the last decade than have Guernseys, and they have done so, first on account of the marvelous records of butterfat production secured; and secondly, on account of the economical production of such fat, for Guernseys give extremely rich milk and the butter they produce per ton of feed is very high.

It was these reasons that induced E. S. Sattison of Lindsay, Cal., to select Guernseys, when he decided to work from ordinary dairying to the pure-bred business a number of years ago. Living at the edge of the citrus district, alfalfa and other feed prices rule high, he found it was necessary to get cows that would bring in as big an income as possible per ton of feed. His stock show the wisdom of his choice, for in spite of the high records which his cows make, practically all being A. R. O. cows, they look well nourished and in the pink of condition. That it is a characteristic of the breed is indicated by the bulls, which seem plump enough to be grain fed, but get nothing but hay and other roughage. In fact, Mr. Sattison says that one of the strong points of the breed is the fact that bull calves are always fat enough to veal profitably —an important fact in grade dairies— and the cows will bring a good price from the butcher when milking days are over. However, it is not this fact, but big, economical butterfat production, that has made the breed famous.

The herd is mostly of the Glenwood strain, being descended from Glenwood of Haddon. The senior herd bull is out of an imported cow and his grandsire is the famous Starlight of Excelsior.

Equine Stock Is High

IF you have not already done so now is the time to breed the mares if a good colt harvest is expected next spring. And why not take a hand in the profits that are sure to come?

Last year the average price received per head was $1.34 more than the year before, and indications are that it will go up even more this year. The war may yet be decided by the number of horses available to the respective forces, for the horse is the most important single factor aside from man. And even if the war should close now Europe must come to the United States for horses to build up her wasted agriculture.

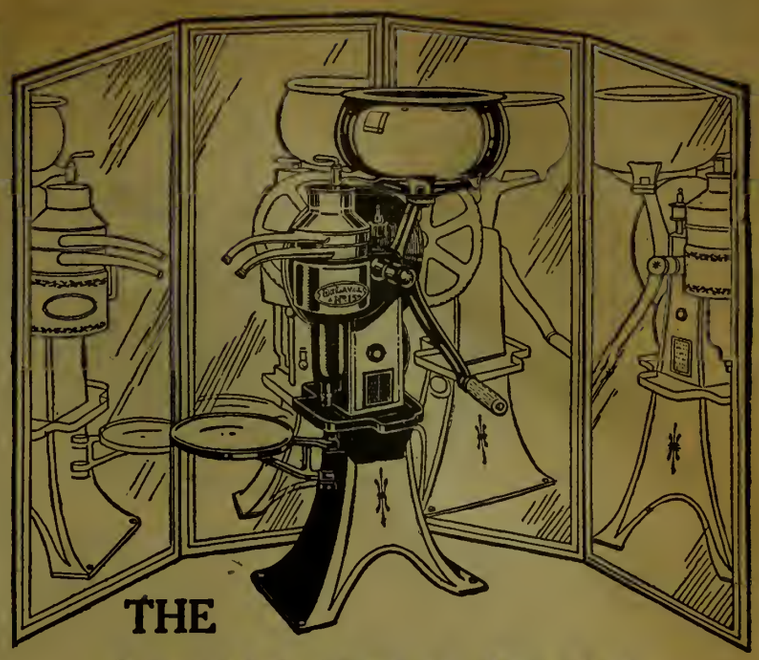
Five years to raise a colt to maturity is a long time, but it is not too long on a sure and paying investment, and the farmer who breeds every mare available is insuring to himself as certain a profit as in any investment he can make.

Utilizing All the Product

THE California walnut crop always includes a certain percentage of small nuts and culls, which were formerly put on the market at unprofitable prices and sometimes hurt the demand for larger nuts of good quality. Now the growers' market association have a cracking plant, where these culled nuts are shelled and the meats sold to grocers, bakers and candy manufacturers, turning the product to profitable use.

It is estimated that last year's crop of cracked nuts amounted to 1,500,000 pounds of nut meat.

The mixing of warm, fresh cream with cold cream is never advisable, as the whole mass is warmed thereby, and souring will follow more quickly.



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It's no wonder that big dairymen and creamerymen who have for years made a careful study of dairy methods and machinery refuse to consider any other separator but the De Laval. They know that from every angle—clean skimming, ease of operation, freedom from repairs, durability—there is no other cream separator that can compare with the De Laval.

They know that it has a record of 40 years of service behind it. They know that it can be depended upon. They know that they can't afford to take chances with any other cream separator—

And neither can you.

Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or if you don't know him, write to the nearest De Laval office as below.

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My herd is headed by Los Royal, son of Winona Champion and grandson of Laurel Champion; also Tehama Boy, son of Panama Lee, the 2d, and grandson of Lee's Artful Premier 1st. Stock from these herd boars are sure breeders. Write for further information to

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The Killefer Monarch Cultivator has more varied uses on the ranch than any other tool we manufacture. As a Beet and Bean Chisel it has no equal. As an Orchard Cultivator, where deep cultivation is desired, it gives perfect satisfaction.

As an Alfalfa Cultivator, when fitted with our Special Alfalfa Tooth, it does excellent work, loosening the ground to a depth of from six to eight inches without injuring the stand. This deep cultivation enables the water to percolate to a greater depth than any other method except subsoiling.

Corvallis, Oregon, April 3, 1916.

The Killefer Mfg. Co.
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Gentlemen: The Monarch Cultivator did us a good job in our alfalfa field taking out a tough grass sod which nearly had the alfalfa whipped out. Am pleased with the performance. We are handling it with a 30 H. P. motor.
Yours, J. B. CORRIE.

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The "Caterpillar" Tractor is built for service—everyday, dependable service, regardless of weather or ground conditions.

That sort of service is insured by correct design, by careful construction, by proper choice of materials—some of manganese bronze, some drop-forged, some case-hardened—each selected for the special work it must do. And into the construction of every "Caterpillar" Tractor goes Holt experience of 35 years in manufacturing.

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Live Stock and Dairy

War and the Creamery

By S. L. Denning.

DURING the last year there has been a great deal of butter put up in the United States for use in the Navy. This butter is probably the highest class that is manufactured in any quantity. California has supplied 2,000,000 pounds of this which is approximately two-thirds of the total amount manufactured in the United States. This is made from sweet cream and is put up in five pound tin cans which are hermetically sealed. The creamerymen have learned to utilize the entire milk for food production. We find one of the most modern factories receiving the whole milk, separating the fat for butter, making the skim milk and buttermilk into either cottage cheese or casein, precipitating the albumen for chicken feed and then condensing the whey and making milk sugar. By this process no part of the milk except the ash and water is lost.

During the last year there has been exported 25 times as much condensed milk, 18 times as much cheese and 6 times as much butter as in any one previous year. On account of this large exportation trade together with the high price of farm labor and feeds and the increased demand for dairy products at home the prices have been raised abnormally high. Probably the price of butter will not average much less than 40c a pound during the next five years, for although our export trade will probably be cut down some when peace is declared, it seems very likely that the United States will be called upon to furnish butter and other dairy products for the European countries for several years on account of the large number of dairy cows that have been killed off in those countries. California will undoubtedly be called upon to supply her part of these exports. In order to meet these demands it will be necessary to intensify dairying in those sections which at the present time are only dairying as a side line and to develop new dairy sections.

During the last few years butter has been sent in carload lots into the New York market where it has been received very favorably. The main objection was that the cube containers were not uniform in make or size. Making up a carload of butter from a number of creameries the problem of uniformity has been a serious one. At the present time the manufacturers and marketing men are co-operating to establish a uniform cube which will undoubtedly be of value in future marketing.

A Sheep Experience

HOW a small flock of sheep on the grain farm can be made profitable is illustrated by the experience of August Reinbold and Andrew Reinbold in eastern Washington, near Davenport.

Two years ago they bought a flock of 105 grade ewes, later buying a pure bred ram. They turned them onto their grain land, of which they have about a section. The result of the last year is interesting.

Having disposed of seven head of the ewes, the other 98 were bred and produced 99 lambs, of which 57 were ewes. About half of these ewe lambs were recently sold for $10 each, and the others kept, though they had many opportunities to sell them. The 42 wether lambs were recently sold at the Spokane Union Stock Yards at 14 cents a pound, averaging about 93 pounds each. The mothers last spring sheared an average of 10½ pounds of wool, which sold at a little better than 50 cents a pound.

The approximate income, then, for the year was:

Ewe lambs	$ 570
Wether lambs	546
Wool	515
Total	$1631

The owners estimate the cost of feed for the year at not to exceed $100, as little feed was actually given the sheep. They were pastured on summerfallow, stubble and a small pine land pasture.

The ewes were originally purchased at a cost of $5.25 each, but would of course cost a great deal more than that at this time.

Out of the profit from the sheep experiment, which was entirely new to the Reinbold brothers, they have fenced their farm sheep tight. They built their fence out of woven wire with one barbed wire below and two above, thus protecting their sheep from coyotes or other predatory animals.

Butchers Want Goats

MUTTON goats are in demand and San Francisco butchers are hunting them up, says a member of the firm of Conklin Bros., Angora breeders at Newville, Cal. This firm reports

"We brought our goats down from the summer range in fine condition. High altitude brings out the best there is in them. Feed is always growing, the water is cool and pure, and if the goats feel like it they can finish off with a little snow on the summit.

"We have had good demand for bucks of all ages at fair prices, and all we lack of being worth a hundred thousand dollars is does to sell. Demand is far ahead of the supply all over the country."

Feed for Big Hogs

INSTEAD of disposing of hogs only weighing 250 to 300 pounds, continue feeding them until weighing from 400 to 600 pounds. That is, those of a stock and bone that will bear it.

Small boned hogs of early maturity cannot be fed larger than when well fatted at any profit to the owner. They must be disposed of when weighing around 200 pounds.

If a big majority of the hogs in the country are fed long enough to make them very large and exceedingly fat, what is lacking in number can be made up in weight, so there will in the end be as much pork and lard as if there was a full run of hogs. From present general indications this certainly is going to be a very profitable winter to fatten hogs.—W. A. G.

A Convenient Goat House

WE live in a dairy region and there are near us some finely equipped labor-saving cow-barns, says Dr. J. A. Dickson in the Milk Goat Bulletin. Taking my cue from them, I have converted a henhouse into a very convenient goat-house for those I am milking. Patrons often ask how much room will be needed for their goats. Therefore, that I might pass on what I consider a good thing, I send you the description of it.

The building is 7 by 16 feet. Three windows face east and one south, hinged at the bottom, so I can have top ventilation. Floor is cement. A partition 2½ feet from the south end gives two box stalls 2½ by 3 feet, where kids are born; we call it "the lying-in ward." North from the par-

tition in center of building we built a platform 15 inches from the floor, 3 feet wide and to within 2½ feet of the north end of the house. Twenty-five inches from east edge of platform we installed six stanchions with a tight box for feed and hay in front. Back of platform is boxed tight to catch all droppings. Above, the goats is another platform which holds six bales of clover hay. At the north end of stanchions we have a box for storing feed. We have had 8 does and 3 new-born kids in this 7 by 16 house and all seemed happy and contented. Our milking room is 6 feet from the stable, and when released from stanchion the goat rushes to the milking stand (made from friend Howland's plans given in the Milk Goat Bulletin.) We have changed and milked 6 goats in 20 minutes. Two years ago our neighbors had fine sport with us over our goats, but when last week we sold a 5 months' old kid for $20, a doe for $40, and another for $50, they sat up and took notice.

The day is here when a goat owner is an aristocrat. I have never dared to advertise, but have sold in a little over a year $290 worth of the "little cows."

More Sheep!

WE must raise more sheep. That is positive, and the Government must help us in the industry. All the National Parks must be thrown open to the sheep men for grazing in this war-time emergency. At the present time the United States does not grow nearly enough wool for its own use, and there is no reason in the world why it should not do so.

California, with only about 2,000,000 sheep, should have 5,000,000 at least, and this can be accomplished if the Government will help in the way suggested.

At its recent convention at the University Farm at Davis, Cal., the California Wool Growers' Association agreed to prosecute vigorously the matter of the throwing open of the National Parks, which today are only playgrounds and could be made to feed millions of sheep to help out the low food and wool supply.

All the sheep men in the State will be asked to form a joint co-operative marketing movement. This was one outcome of the wool men's convention. Another result was the decision to educate the public that the most economical weight at which to slaughter young sheep is 36 pounds and the age about six months. This meat is known as "lamb" and at first was placed under the ban by the food administration. Subsequent orders from J. P. Cotton, representing Food Administrator Herbert Hoover, however, indicates that the food administration has receded from its stand and now recognizes the contention of the growers that the marketing of lambs really assists the food conservation more than it does to carry the sheep to the age of yearlings.

One of the features of the meeting was the proposition of an advanced registry for the fine wooled breeds, which was suggested by Prof. R. F. Miller of the University Farm. Prof. Miller has been working on the matter during the past two years and has come to the conclusion that it would be feasible to set a standard for advanced registry on the production, length of fiber, weight in the grease and percentage of shrink. A committee was appointed to take up the matter of setting a certain standard which will report back to the association.

The cleanest milk may be secured by the use of a milking machine is [illegible] provided that due care is taken to clean and sterilize after each milking.

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On Galvanized Surface Irrigation Pipe, Riveted Street Water Pipe and Well Casing.

It is every farmer's duty to produce to his maximum capacity. "Food will win the war." Our products will enable you to do your "bit."

Send for our new Circular on Irrigation Supplies.

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are common in Western Canada. The thousands of U. S. farmers who have accepted Canada's generous offer to settle on homesteads or buy farm land in her provinces have been well repaid by bountiful crops of wheat and other grains.

Where you can buy **good farm land at $15. to $30. per acre—get $2. a bushel for wheat and raise 20 to 45 bushels to the acre** you are bound to make money—that's what you can do in Western Canada.

In the provinces of Manitoba, Saskatchewan or Alberta you can get a

Homestead of 160 Acres Free

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During many years Canadian wheat fields have averaged 20 bushels to the acre—many yields as high as 45 bushels to the acre. Wonderful crops also of **Oats, Barley and Flax. Mixed Farming** is as profitable an industry as grain raising. Good schools, churches, markets convenient, climate excellent. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Can., or to

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TUMORS, WENS AND ALL BREAST LUMPS TREATED

Strictly a non-operative treatment. NO KNIFE. NO BLOOD AND WITH LITTLE OR NO PAIN. Our method of application positively kills every particle of diseased tissue.

REMEMBER that danger signal is a sore that does not heal or the rapid increase of growth in a lump, wart, mole or scab which may have been present a long time. If these conditions appear in an individual over 40 years of age they are NEARLY ALWAYS OF A MALIGNANT NATURE and should be given immediate attention.

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not only meet all requirements as to speed of delivery and ease of installation but they fulfill every demand for endurance and strength. The iron used in "Armco" Culverts is remarkable for its purity and evenness. If you have ever pulled an old hand-wrought nail out of a building that has stood for years, you will know that pure iron endures.

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Every garden, every farm, every ranch should have these berries planted this season. Do your bit and aid in food production to win the war. No berry compares with Cory's Thornless Mammoth Blackberries as a prolific bearer. They are earlier, larger, have fewer seeds, better flavor for jams or canning and will sell more rapidly when crated for the market than any other berry. The canes are as free from thorns as the grapevine. They are a great discovery. Buy yours now. Individual plants have produced 15 three-quarter-pound baskets at one picking.

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Cut this out and mail today.

The Flower Garden

By Mrs. E. E. Paquette

Mrs. Paquette, who is a well-known floral gardening authority of Ventura, Cal., writes exclusively for Orchard and Farm. She will reply to questions addressed to her at 1118 Poli street, Ventura, Cal., if the inquirer will enclose a stamp.—Editor.

BEFORE we begin this month's work, let's get acquainted. One dear reader who is a mother before she is a gardener writes: "How can you talk of flowers and flowers only when our nation is at war? If you had a son 'over there,'" etc.

My dear madam, I have a son—and another son—not yet "over there," but the same mail that brought your letter brought me a letter from a boy in the United States Artillery at Port Arthur; also one from a boy in the United States Navy at Norfolk, Va. One said: "We expect to be sent soon." The other said: "It is just a question of a few days before it will be a big boat and 'over there,' and I will be glad to go." Both boys volunteered and are proud to be able to do their bit, and both said that they wanted us to be just as happy and cheerful as we could be.

Our third son is confined to his bed with muscular rheumatism, and between spells of pain he is knitting his six-inch squares. He is only 8 years old, but is glad to do his bit.

Another reader writes: "How do you manage to think of and work with your flowers when there are so many sad things in the world today?"

Why, bless you, dear heart, that is one of the reasons we should "manage" to think and work with our flowers. What a world it would be if we should shut out all smiles, flowers and laughter just because there are sad things. We are told to

"Keep the home fires burning—while your hearts are yearning,
Tho the lads are far away—they dream of home—"

Now doesn't "Keep the home fires burning" mean to keep things bright and cheerful? And when our lads dream of home do we want them to dream of a bright, cheerful home, with flowers blooming in the garden, or a place where nothing is thought of, talked of or done but work and food and war? I know that nothing on earth would make either my soldier boy or sailor boy dream of home quicker than the sight of a flower.

As I said once before, there is plenty of room for both food and flowers in this glorious State of ours, so let's keep the home gardens blooming.

A Dry Garden

"I have a dry, rocky place on one side of the house; it will not do for a vegetable garden and looks bare now. Are there any flowers or shrubs that would grow there? And how should I stop the soil from washing where there is a bank? Cannot afford concrete wall or even labor for stone wall."

To begin with, if you will plant a lot of cuttings of the large cream-flowered Mesemberanthemum you will soon have a wall of living green that will stop all loss of soil. Then plan a wild or woodsy garden.

If there are no trees and the plot of ground is large enough, plant in the background a good hardy pine—pinus coulteri is a hardy pine that does well on dry hillsides—also as many good cypresses as the size of your garden will allow. Then lay out your plot with walks. Border the walks with iris of the hardy Germanic type. They will do well with little water and shallow soil.

Plumbago will make a good-sized shrub and furnish you with good bloom in the dryest of weather. There should be a cactus bed in every garden. Start one among your rocks. There are so many varieties of cactus and plants of that nature that you may have an interesting bed of them alone.

And by all means have a pool among your rocks. If it is nothing but a big tub sunk and partially shaded by shrubs. Conceal the edge with rocks and put rocks in the bottom and add a small umbrella plant, some parrot's feather and water hyacinths and a gold fish and you will have an interesting spot in your garden.

Petunias do well among rocks and furnish plenty of color. Also try the old-fashioned rose moss.

About Cypress

"I am planning to plant some cypress and am not sure just which I want. Will you tell me the difference in Lawson, Arizona, Italian," etc?

The Lawson cypress is a fine, large tree, known in Oregon as Port Orford cedar, and it is a question in my mind which name is right. It is blueish green, with slender, partly-drooping branches.

Arizona cypress is a native of Arizona and very drought resisting. It is also of a bluish green color and fine pyramidal shape.

Monterey cypress is the one used all over California for hedges and wind breaks. It grows very quickly and is hardy.

The Italian cypress is the stately tall cypress so much used in landscape gardening. It is wonderfully effective planted in groups, pairs or singly. Of all cypresses, it is the most classical and stately. A well-placed specimen or two will add dignity and tone to any garden. There is also listed in most nurseries the Lusitanica, a beautiful foreign cypress that also does well here; the Mendocino cypress, which has the reputation of being the most drought resisting of all, and the Gowans cypress, a native of the coast regions, that is a slender, erect tree with graceful, spreading branches.

A Blue Garden

"Some months ago I read an article about a blue garden. I am not sure it was in your department, but think it was. I am fond of blue, and my china is decorated with blue and I like it for cut flowers for the dining room. Is a blue garden practical and what should I plant in one?"

If I mistake not, it was Bernard Shaw that wrote about his garden of blue, or was it someone else's garden that he fell in love with? A blue garden is simply a matter of taste. It would not satisfy me, but if that is what you like, you should have it. I have a feeling that it would prove more satisfactory if you would add yellow or white to bring out the blue.

You could have a number of larkspurs, Canterbury bells, phlox, iris, both in the Germanicas and Japanese; corn flowers, chimney bellflower, asters, pansies, forget-me-nots, blue daisies, sweet peas, heavenly blue morning glories, verbenas and borders of lobelia and small Canterbury bells.

And if you want a good, hardy shrub that will furnish bloom in the winter months as well as the dry summer months, plant a few plants of plumbago. They will need little water or care and the bloom is something like a phlox or sweet William, and very effective for the table. There are also columbines in blue, and for vines you could have wistaria for spring bloom and the blue solanums for summer and fall.

P. S. C. ROSIN SPRAY
For Mealy Bugs, Scale, Aphis, etc.
MAKES GOOD

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HORTICULTURAL COMMISSION
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Pacific Soap Company, Los Angeles, Cal.
Gentlemen: We have had an extensive trial, amounting to a commercial use of your P. S. C. ROSIN SPRAY.
In this use we have treated red scale, purple scale, black scale, red spider and aphis and wherever used the results are entirely satisfactory to the writer and to his inspectors, who in a large degree are responsible for the commercial control of pests in the county.
I believe the spray is a great improvement over fumigation or any other method of scale control that has been in use for the last twelve years. Yours very truly (Signed) C. W. BEERS, Horticultural Commissioner.

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MATTHES SYSTEM—cures, for it removes the cause of your trouble.
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Results from MATTHES SYSTEM are permanent. Results from glasses are temporary. No drugs, operations, no danger, no difficulties with this helpful system. It is easily understood; inexpensive; prepared by Dr. Matthes, O. D. Write today.

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2-year-old, $20 per 1000.
WILLOWBROOK FARM
R. F. D. No. 1, Redwood City, Cal.

Only 3 Cents a Word

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. Ads should be in our office by the 23rd of the month. Address Orchard and Farm Examiner Building, Los Angeles, California.

Big State Project

(Continued From Page 3)

Stanford ranch and about 2000 acres of the Lott lands immediately to the north. The sale involves in all about $500,000.

A rough subdivision of the tract already completed provides homes for 100 families. Over 200 applications are now in the hands of Dr. Mead and more are arriving every day. The settlers will be picked after careful investigation by the board. The first requisite will be that the applicant is a loyal, patriotic American citizen, not holding agricultural land elsewhere in the State of California.

He must be able to make a payment of at least one-third of his investment. The board will advance the other two-thirds and he will have from twenty to thirty-six years to repay the State with interest at 5 per cent.

Married men with families will be given preference over the unmarried, and the poor man with savings enough to start will also have the preference over a wealthy applicant.

Ready in April

The State will have a Farm Adviser on the job all the time and the colonists will not be permitted to fail. Purchasers must take possession within six months; must live on the land at least eight months out of every year and cannot sell without the permission of the board for a period of ten years. The State expects to begin placing colonists on the tract by April.

Several standard types of homes will be built, all under the supervision of the Land Board, which will purchase and contract for material and construction work in order to effect an overhead saving.

The University of California is now preparing plans for country homes. They will be equipped with sleeping porches, and the sanitation will be taken care of by septic tanks.

Houses, Barns and Silos

The State will not only build the homes, but will construct the barns and silos as well, seed the land and provide the livestock. Only one breed of cattle, sheep and hogs will be permitted on the colony and the board will see that only the finest stock is introduced.

Already a prominent Eastern breeder is planning to sell out and make his home on the colony, to take charge of the cattle.

Before the final subdivision of the tract is made the plans will be approved by a landscape expert from the university who will see that the natural beauty of the land with its stately oaks and dashing mountain stream is preserved.

The farm labor problem is attacked by the blocking off of a number of two-acre plots for farm laborers. These will be sold to married laborers who have not enough money to purchase a small farm. These laborers will have homes and room enough to raise a garden, a little fruit and keep a pig and a cow, in addition to working for the others in the colony who have more extensive holdings.

It is believed this will attract the better class of farm laborer and help him keep his family together, whereas at present he sleeps in barns and along the tracks, tramping from place to place seeking work where he is needed.

Our State, the first in the Union to conduct such a demonstration, has proved itself worthy of the declaration of Governor Stephens in his message to Orchard and Farm that "is only one place for California and that is in the front rank."

Tractor Meet

That the agricultural department of the University of California and the tractor and power farming machinery manufacturers of California have arrived at a mutually beneficial understanding is demonstrated by the excellent spirit of co-operation existent between the University and the California Tractor and Implement Association.

This refers particularly to the 1918 official tractor and power farm implement demonstration, which will be held at the University farm at Davis on April 17th, 18th and 19th. These three days precede the annual University farm picnic day, when in the neighborhood of 20,000 people are expected to gather at the fountain of agricultural learning and absorb wholesome agricultural facts. On this particular day, the tractors and implements will not be demonstrated, but will be on still exhibit at the farm. Last year 16,000 people attended the farm school picnic.

Greatest interest in the demonstration will unquestionably be on the 17th, 18th and 19th, when the tractors will be seen performing the duties tractors are built to perform, both in the field and running stationary machinery. The University has set aside several hundred acres of the farm for the operation of tractors during the demonstration.

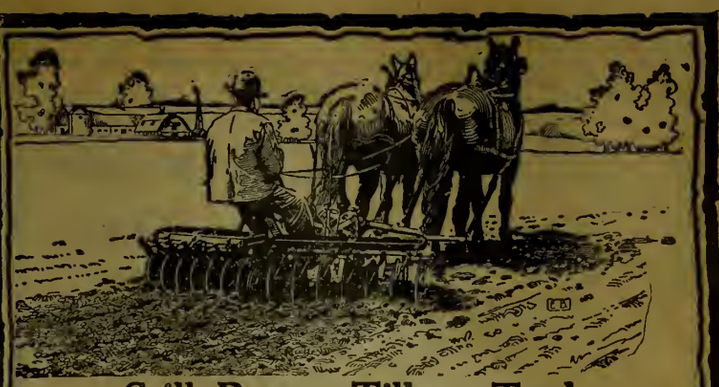
Prof. J. B. Davidson, the head of the department of agriculture engineering of the University, will direct a number of tests, which will be official, and set forth precisely the draw-bar pull, belt power, turning qualities and other factors which go to make a tractor successful.

The demonstration will unquestionably represent the broadest scope of farm power machinery ever exhibited on the Pacific Coast. It is the intention of the University and the Association to show all machinery working under conditions, as nearly as possible, similar to those under which the same tractor or stationary machine would work in the hands of the individual owner. This will tend, exhibitors say, to impress the prospective purchaser with the logic and advisibility of owning power farm machinery in preference to the horse and mule.

The coming demonstration is regarded as an excellent educational opportunity for California farmers and those interested in farming and modern farm equipment. Secretary Houston of the Department of Agriculture and President Woodrow Wilson have called upon the farmers of the country to increase crop production to the greatest possible extent, to the end that our boys in France and the soldiers of our Allies be provided ample food. This demonstration should prove materially to impress farmers with the desirability of ownership of modern equipment; the kind of equipment that produces maximum results, which means larger crops, greater profits for the individual, and more food for the Nation and its Allies.

Snow in Yucaipa Valley

George W. Hopkins, general manager of the Gateway Anple Colony in the Yucaipa Valley, reports that the second storm of the season has given the valley, in addition to two inches of rain, from nine to twelve inches of snow throughout the entire valley. This is heartily welcomed by the owners of the five thousand acres of apple orchards just now coming into bearing, and, with the ordinary spring rains, a bumper crop for 1918 is assured.



Still Better Tillage Tools

Deering—McCormick—Osborne

HAVE you seen the **New Third Lever on a Deering, McCormick, or Osborne** Three-Lever Disk Harrow? It is a depth regulator. With it you raise and lower the inner ends of the disk gangs to meet *all* field conditions. You do this quickly and easily, without in any degree destroying the rigidity of the gangs, for which International Harvester disks have always been famous.

Have you seen the **New and Exclusive Attachment of the Tandem?** This is another feature we are proud of. The connecting braces tie to both leading gangs, extending from the tandem in such a way that the gangs *must* cut the ridges left by the leading gangs. In turning corners, the sliding connecting braces allow natural flexibility and following of the tandem without crowding sidewise.

International Harvester disk harrows have done top-notch good work for many years. They have built-in weight boxes, adjustable forecarriage, 4-wear wood bushings, tall hard oilers, etc., etc. This year they are simply unbeatable.

When you want seed beds that are right, be sure your tools —disk harrows, peg and spring-tooth harrows, cultivators, etc. —are **Deering, McCormick** or **Osborne.** Write us.

International Harvester Company of America
(Incorporated)

Crawford, Neb. Denver, Colo. Helena, Mont. Los Angeles, Cal.
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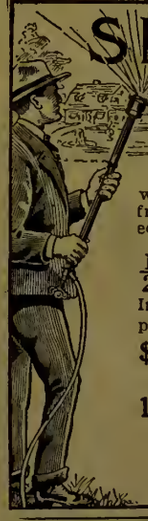
SPRAYING HOSE
HAMILTON MADE



"THE STANDARD OF AMERICA"

Spray your trees with hose made to withstand the chemicals and acids which cause ordinary fruit hose to deteriorate quickly. Hamilton Fruit Spray Hose will give several years' service for one cost. Used by leading fruit growers who recognize Hamilton quality and ultimate economy.

½ in. Perfect Hose In 50-foot pieces, coupled. 6-ply fabric and fine rubber.

½ in. Sterlingworth Hose Reel Spray Hose in 500-foot lengths, the best.

$15.00 for 100 ft. Either kind will stand 600 pounds test. Satisfactory for any power or hand sprayer. $15.00 for 100 feet. Cash with order. Express paid to your station. Shipments immediate.

HAMILTON RUBBER MFG. CO.
208 Meade Street, Trenton, N. J.

SEED CATALOG FOR 1918 FREE

We pay the freight, express or parcel post charges on all seeds at prices quoted in our catalog.

VALLEY SEED CO.
504-506 Jay St., Sacramento, Cal.

Daily Milk Record Sheet

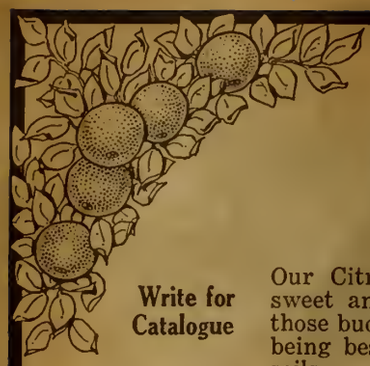
For ten cows, size 10 ins. by 17½ ins.

6 Sheets for $0.25, Postpaid.
15 Sheets for $0.50, Postpaid.
25 Sheets for $0.75, Postpaid.
50 Sheets for $1.25, Postpaid.
100 Sheets for $2.00, Postpaid.

If you have ten cows or less, you will need one sheet a month, for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.

Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

Address Orchard and Farm, Examiner Building, Los Angeles, California.



From the roots up, our trees cannot be excelled.

Citrus and Olive Trees

Write for Catalogue

Our Citrus trees are budded on sweet and sour orange seedlings, those budded on the sour seedlings being best adapted to the heavier soils.

Olives make handsome specimen border and avenue trees. The Mission variety has a fine upright growth, and is suited for avenues, while the Manzanillo, Sevillano and Ascolano, being spreading growers, are usually planted in orchard form.

Place Your Orders Early.

FRESNO NURSERY CO.

Department C,

Fresno, California.

RHEUMATISM

Use ANTI-URIC, the famous ROOT and BERRY remedy for the cure of RHEUMATISM, catarrh of the stomach and the purifying of the blood; will assist the kidneys; has cured thousands. Contains no opiates or chemicals, and the most delicate stomach can take it. An outfit (two weeks' treatment) contains an 8-ounce bottle of liquid, a box of tablets for internal use and a 1-ounce bottle of oil especially prepared for MASSAGING the parts affected. Results guaranteed or money refunded. Price $1.50 per outfit. If not at your local druggist we will send prepaid by Parcel Post, C. O. D. Write today.

ANTI-URIC CO., 32 Front St., San Francisco.

Kill Squirrels Gophers

The only exterminator that is 100 per cent efficient and guarantees results or money back, is

KILMOL
SQUIRLGOPHENE

It contains special chemicals. Kilmol fumes not only asphyxiate the squirrel or gopher, but eat away their lung tissues. Even should the animal reach fresh air, he can't survive. No other exterminator is as effective as Kilmol. That's why Kilmol costs a little more—but economy in labor warrants the advanced price. For best result use prepared waste balls saturated with Kilmol.

New formula of U. S. Government Poisoned Barley is effective in dry weather. Kilmol and U. S. Government Poisoned Barley are used and endorsed by the biggest and most successful ranch owners.

Remember, results guaranteed or money refunded.

Your local dealer carries Kilmol, Waste Balls and U. S. Gov't. Poisoned Barley.

MANUFACTURED BY HERBERT F. DUGAN, 1170 SUTTER ST., SAN FRANCISCO

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.

Some Stray Facts

Better Flour

ANOTHER good thing has come out of the war. We are to have more of the whole wheat in our flour. For a long time housewives have been demanding "lovely white flour" for their bread and cakes and millers have had to live up to their demands, but now in steps Hoover and virtually says that lovely white flour must go.

Here is the little clause in the milling regulations that will bring us back to the good old nutritious flour bread of our grandfather's day:

"No licensee shall use more than 264 pounds of clean wheat in making 196 pounds of 100 per cent flour.

"From the 100 per cent flour so produced the licensee may, at his option, remove not more than five per cent of clear or low grade flours, none of which may be mixed with or sold as feed. The 95 per cent of the 196 pounds of flour remaining shall not be subject to further separation or division."

And perhaps when this regulation is in full force people will learn that it isn't the looks of bread so much as the nutriment in it that really counts.

Salaries Paid in Army

	Monthly	Yearly
General	$833.33	$10,000
Lieutenant General	750.00	9,000
Major General	666.67	8,000
Brigadier General	500.00	6,000
Colonel	333.33	4,000
Lieutenant Colonel	291.67	3,500
Major	250.00	3,000
Captain	200.00	2.400
First Lieutenant	166.67	2,000
Second Lieutenant	141.67	1,700
Sergeant	38.00	
Corporal	36.00	
1st Class Private	33.00	
2nd Class Private	30.00	

NOTE—The last four receive an increase of 20 per cent of the pay before the increase of June, 1917, for foreign service, which is equivalent to about 10 per cent of the pay as shown above.

How to Preserve Eggs

By the use of water glass (sold in drug stores as sodium silicate), it is possible to preserve eggs for months. The water glass has no chemical action on the eggs but keeps out the air.

Use one gallon of water glass and nine gallons of water. One quart of water glass will make enough liquid for a five-gallon crock full of eggs. Place eggs in crock and pour the solution over them until they are covered.

The eggs should be absolutely fresh, not three or four days old. They should be put down the day they are laid and kept in a cool place

Longest Rivers

Missouri-Mississippi	4194 miles
Nile, Egypt	4020 miles
Yangtze-Kiang, China	3158 miles
Amazon, South America	3063 miles
Yenisei, Siberia	2960 miles
Amur, Siberia	2920 miles
Congo, Africa	2883 miles

To Prevent Constipation

Constipation long continued is no trifling matter. Free water drinking when the stomach is empty, especially before breakfast, is beneficial.

The best regulators of the bowels are foods. Foods should possess sufficient bulk to promote the action of the intestines and should contain a due amount of laxative elements. Foods which are especially laxative are prunes, figs, most fruits (except bananas), fruit juices, all fresh vegetables, especially greens of all sorts, wheat-bran, and the whole grain cereals. Oils and fats are also laxative, but cannot be used in sufficiently large quantities to produce very laxative effects without producing loss of appetite. Foods which have the opposite tendency are rice, boiled milk, fine wheat flour bread, corn starch, white of egg. The use of wheat-bran in cereals, in bread, and even in vegetables is a preventive of constipation.

Wedding Anniversaries

First	Cotton
Second	Paper
Third	Leather
Fifth	Wooden
Seventh	Woolen
Tenth	Tin
Twelfth	Silk and Fine Linen
Fifteenth	Crystal
Twentieth	China
Twenty-fifth	Silver
Thirtieth	Pearl
Fortieth	Ruby
Fiftieth	Golden
Seventy-fifth	Diamond

Pitch of Roofs

When the distance of the peak of a roof above the roof plates equals one-half the width of the building, the roof has a half pitch. When it is one-fourth the roof has a quarter pitch, etc.

The length of rafters for the most common pitches can be found for any span by using the following figures:

For 1-2 pitch	multiply	span	by		.71
" 3-8	"	"	"	"	.625
" 1-3	"	"	"	"	.6
" 1-4	"	"	"	"	.56
" 1-5	"	"	"	"	.54
" 1-6	"	"	"	"	.53

To this length must be added the amount of projection of rafters at eaves, also the length for cutting.

To find the area of roof, multiply length of rafters by length of roof

Formulas for Grafting Wax

1. A common formula is: Resin, 4 parts by weight; beeswax, 2 parts; tallow, 1 part. Melt together and pour into cold water. Grease hands and pull the wax until it is nearly white.

2. In cold weather, take 6 pounds resin, 1 pound beeswax, and 1 pint linseed oil; apply this one-eighth of an inch thick, hot, over all the joints.

3. In warm weather use: 4 pounds of resin, 1 pound of beeswax, and from half a pint to a pint of raw linseed oil (pure). Melt all together gradually, turn it into cold water and pull.

The Size of Silo to Build

No. of Cows	Pounds Required Daily	Size of Silo Needed		
		Diam. Feet	Height Feet	Cap. Tons
6	240	9	20	22
9	360	10	24	34
13	520	10	30	47
15	600	12	26	55
20	800	12	32	74
25	1000	12	38	94
30	1200	14	34	109
35	1400	14	38	128
40	1600	16	34	143
45	1800	16	38	167
50	2000	16	40	180

Based on 40 lbs. per cow a day.

One ton of hay requires 500 cubic feet of storage space, while one ton of silage requires only 50 cubic feet

Pheasants are said to require but one-twentieth the amount of feed required by chickens. Ringneck pheasants weigh three and one-half pounds when mature.

First Aid to the Injured

Burns and Scalds—Cover with cooking soda and lay wet cloths over the injured parts. Household ammonia applied immediately is excellent; also white of egg and olive oil; sweet or olive oil and lime water.

Sunstroke—Loosen clothing. Get the patient into the shade and apply ice cold water to head. Elevate head.

Stings of Insects—Apply weak ammonia, salt water or iodine.

Mad Dog or Snake Bite. Tie a cord tightly above wound. Suck the wound and cauterize with caustic or white-hot iron immediately.

Fainting—Place flat on back. Allow fresh air to circulate, and sprinkle with water. Head lower than body.

Fire in Clothing. Don't run—especially downstairs or out-of-doors. Wrap in a carpet or blanket. Keep the head down, preventing inhaling flame.

Antidotes for Poison

First—Send for a physician.

Second—Induce vomiting by tickling throat with feather or finger; drinking hot water or strong mustard and water; swallow sweet oil or egg whites.

Opium, Laudanum or Morphine—An emetic should be followed by strong coffee or an egg white. Keep the patient walking for two or three hours.

Arsenic, Corrosive Sublimate or Copper Kettles—Give an emetic and the white of an egg, sweet oil and milk.

Strychnine—First give an emetic, and then large dose of bromide of sodium (60 grains in solution). Repeat every hour for three or four doses.

Toadstool Poisoning—Give emetics castor oil, stimulants—apply heat.

Poison Ivy or Oak—Apply hot water or peroxide of hydrogen to the poisoned surface or a solution of sugar of lead, about 40 grains to a pint of water. Baking soda and dry starch help.

How to Measure Land

To find the number of acres in any rectangular piece of land, multiply the length and breadth in rods together, and divide by 160.

When one side of a triangle and the perpendicular to that side from the opposite angle are given, take one-half the product of the side and perpendicular, and divide by 160.

When the piece of land is in the shape of a trapezoid, multiply one-half the sum of the parallel sides by the perpendicular between those sides and divide by 160.

In general, the parts into which the field can be divided will be triangles, but in some cases it may be a rectangle or a trapezoid, whose areas may be found by the preceding rules. An approximate area may be computed by stepping off the distance. An average step or pace is 30 inches.

Amount of Paint Required

As there is a wide difference between the kinds of wood and other materials and the age of the surface to which paint is applied, it is impossible to give any hard and fast rule for figuring the quantity of paint. The following approximate rule will serve as a guide:

Dividing the number of square feet surface by 200 will give the gallons liquid paint for two coats. Or, dividing by 18 gives the pounds of dry ground white lead for three

SEND FOR PRICE LIST
CLAY PRODUCTS
GLADDING, McBEAN & CO.
PERMANENT PIPE FOR IRRIGATION DRAINAGE CULVERTS SEWERAGE
CROCKER BLDG. SAN FRANCISCO
WORKS—LINCOLN, CAL.

TREES We offer a few choice prune, pear and cherry trees, also other first class nursery stock at special low prices. Order today
BENEDICT NURSERY CO.
185 E. 87th St., N. Portland, Ore.

GOING TO BUILD?
Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.
Contractors' & Builders' Supply Co.
1401 5th St. Oakland, Cal.

"You Can't Beat It"

"That orchard of mine is the best in the country. This year it's bearing a crop of fruit that would break the branches if they weren't propped up. And it's only five years old at that."

"How did I do it? That's easy. Learned to use my head and

HERCULES DYNAMITE

"I've not always had that kind of an orchard. I'll admit it. Mine used to be only average or below average, instead of way above average as that one is. It's because I used to plant my trees in spade-dug holes—holes with hard root-resisting sides. Now I blast the holes with Hercules Dynamite. As a result the holes have soft walls, ready to welcome the roots. Also the ground around each hole is shaken up, gets sort of an internal ploughing."

"Sounds too simple to make such a difference in the orchard doesn't it? And yet, when you think of it, there is a very good reason why the difference is there."

"The roots of a tree are the only part that doesn't show but they are the most important part at that. The entire life of the tree depends on them. If you prepare the ground so that they can grow twice as fast, become twice as strong, as under ordinary conditions, you're going to get a tree that's twice as good, aren't you? Why of course you are! And that's what Hercules Dynamite does."

"There's a book about the use of dynamite for orchards that you ought to read. It's called "Progressive Cultivation" and it's sent free on request. Write for it today.

HERCULES POWDER CO.
1015 Chronicle Building
San Francisco California

Hercules Powder Company,
1015 Chronicle Building, San Francisco, Cal.
Gentlemen:—Please send me a copy of "Progressive Cultivation." I am interested in dynamite for_____
Name _____
Address_____

MOTOR B TRACTOR OIL B

·RUN ALL DAY AND NIGHT WITHOUT HEATING·

(ELIMINATES SPARKS FROM EXHAUST)

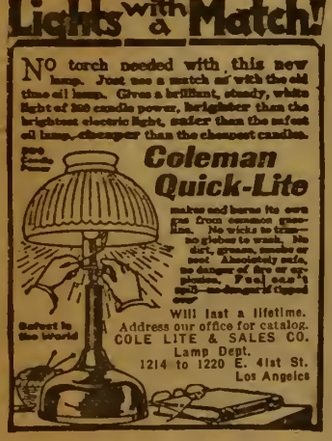
YOUR DEALER HAS IT OR CAN GET IT.

MONAMOBILE OIL COMPANY, 562-564 Howard Street

San Francisco, Cal.—Phone Sutter 2031.

Lights with a Match!

NO torch needed with this new lamp. Just use a match as with the old time oil lamp. Gives a brilliant, steady, white light of 300 candle power, brighter than the brightest electric light, safer than the safest oil lamp, cheaper than the cheapest candles.



Coleman Quick-Lite

makes and burns its own gas from common gasoline. No wicks to trim—no globes to wash. No dirt, grease, smoke or soot. Absolutely safe, no danger of fire or explosion. Fuel can't spill—no danger if tipped over.

Will last a lifetime.

Safest in the World

Address our office for catalog.
COLE LITE & SALES CO.
Lamp Dept.
1214 to 1220 E. 41st St.
Los Angeles

Farm Machinery Wanted

Scotty Pays Cash

for any kind of farm machinery you don't need and want to sell. No matter what it is, write us, giving us a good description of what you have. We want hay balers, cultivators, plows, harrows, drills, harvesting machinery, threshing machines, feed cutters and grinders, tanning mills, windmills, gasoline engines, tractors, blacksmith tools, belting, in fact, anything and everything you have to sell.

Scotty's Place

135 South Los Angeles Street,
Los Angeles, Cal.

We carry the largest stock of new and used farm machinery of any firm in the State. Visit us or write us and save money.

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month. Address Orchard and Farm, Examiner Building, Los Angeles, California.

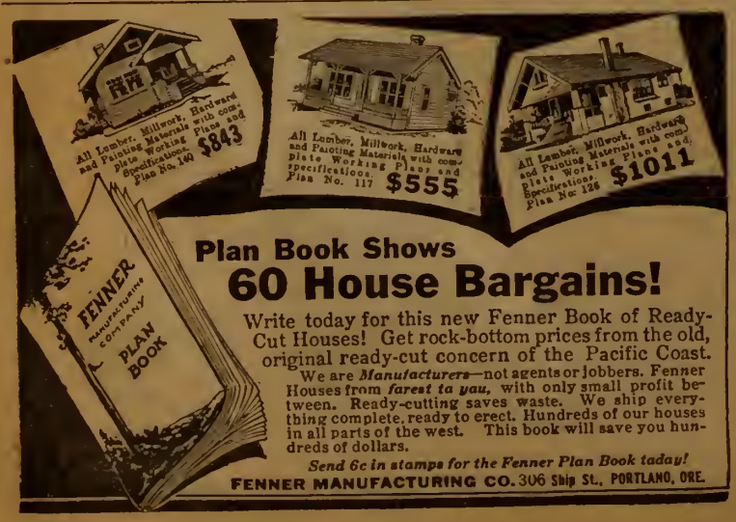
The Cunningham Land Roller and Pulverizer

Makes a perfect seed bed, stops evaporation, preserves moisture, breaks crust, breaks down ridges, closes cracks, protects roots from drying north winds, works under and close up to trees in orchard work. It is the best clod crusher ever made for farmer, orchardist, vineyardist, nurseryman and seedsman.

Made in All Sizes. Write for Circular.

Manufactured and Sold Exclusively by

SPALDING-ROBBINS DISC PLOW CO. 625 Market St. San Francisco.



Plan Book Shows

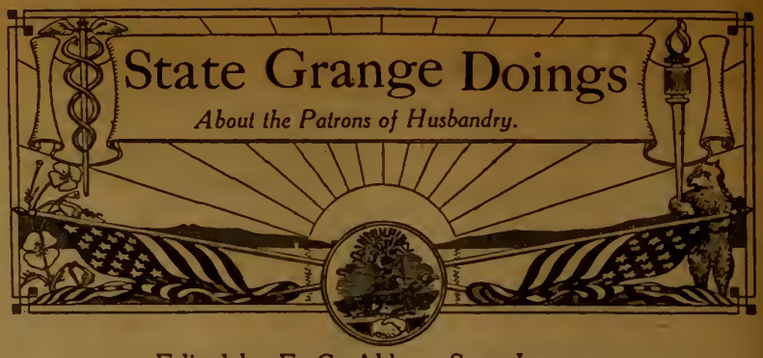
60 House Bargains!

Write today for this new Fenner Book of Ready-Cut Houses! Get rock-bottom prices from the old, original ready-cut concern of the Pacific Coast.

We are *Manufacturers*—not agents or jobbers. Fenner Houses from *farest to you*, with only small profit between. Ready-cutting saves waste. We ship everything complete, ready to erect. Hundreds of our houses in all parts of the west. This book will save you hundreds of dollars.

Send 6c in stamps for the Fenner Plan Book today!

FENNER MANUFACTURING CO. 306 Ship St., PORTLAND, ORE.



Edited by E. C. Abbott, State Lecturer.

Orchard and Farm is the official organ of the Grange in California. Those patrons of husbandry who may send interesting items about the progress of the Grange to the State Lecturer will confer a favor upon us. What is particularly wanted is new ideas for Grange development. Address Dr. E. C. Abbott, R. D. 123, San Jose, Cal.—Editor.

Chinese Labor and Saloons

ACTION on two important war measures is now being taken by the Granges of the State.

A set of resolutions from Santa Clara County Pomona Grange favoring the importation of restricted Chinese labor and asking that all saloons be closed during the period of the war, has been sent to the Granges of the State for approval.

Another set of resolutions from Sacramento County Pomona Grange, which is unalterably opopsed to the importation of Chinese labor, has also been sent to the Granges.

The result of the action by the Granges of the State as received by State Master F. L. Hunt of Napa up to February 7, is as follows:

Granges in favor of restricted Chinese labor	6
Granges opposed to Chinese labor	21
Neutral	1
Granges in favor of closing saloons	21
Granges taking no action on saloon question	8

Grange work has been started in Siskiyou County and so far one Grange has been organized and named Big Springs Grange.

What the Grange Is Doing

Professor Atkeson of West Virginia says: "I may say that at no time in the more than fifty years of Grange history has there been greater necessity for the Order of Patrons of Husbandry than now, and when the present gigantic war is over, as it must be some time, the necessity for the Grange will be largely increased.

"Our whole social and economic systems are undergoing a radical change and during the years of economic readjustment, sure to follow the close of the war, the Grange will find its supreme value to agriculture in securing something near equal justice for our farmers in the struggle for supremacy that is to come. No government-controlled machinery can or will protect the interests of agriculture against the encroachments of other interests. No power on earth but the farmers themselves can do this. An organization of farmers to be effective must be absolutely independent, self-supporting and controlled and directed by its own officers and trusted leaders developed from the ranks of actual working, producing farmers.

"The Grange bows the knee to no man or set of men, and it owes allegiance to no sect or party, but marshals all its forces against all influences that would exploit the farmers of the State or nation. With its secret ballot and well disciplined, thoughtful, loyal leadership, it reserves to itself full control of all its forces."

Deciduous Fruit Station

For a long time the members of the Granges of Santa Clara Valley have felt that an experimental deciduous fruit station was needed, where some of the difficult fruit problems could be studied and if possible solved. It is almost impossible to ascertain why so many trees are killed or injured by oak fungus, sour sap, brown rot, blight, etc., without continued experiment and study. To do so in individual orchards is not a success, as has already been ascertained. So a committee from the Grange, Chamber of Commerce and Farmers' Union went to Berkeley to consult with Dean Hunt and associates in regard to asking for an appropriation from the next Legislature for that purpose. The matter was fully discussed and the outlook now seems favorable for such action.

Grange Notes

Are the teachers in your vicinity members of your Grange? If not, why not? It would be a great help to your Grange, and an opportunity for the teacher to get acquainted with the best element in the community. Greenfield Grange has at least three members who are teachers.

Are the women of the Grange visiting the schools and finding out what the teachers are doing? Is agriculture being taught and are the text books on the subject satisfactory? The Grange is pledged to the cause of education. What are you women doing for it?

State Master Hunt is endeavoring to make the work of the Grange uniform throughout the State. While the Grange does not lay great stress on the ritualistic work, yet it is felt that doing the work in a perfect manner is a great benefit, especially to the younger members of the order. It strengthens the memory, gives poise, and brings out the beauty of the drama presented by the different degrees. One great aim of the order is to help the young man or woman living in a rural community by creating a social center where they may find an agreeable change from the routine work of the farm. For the older members it is a place where those engaged in similar work may disucss and solve some of the agricultural and community problems. And it is the bond of the ritual perfectly carried out that binds them together.

San Jacinto Valley Thrift

(Continued From Page 6)

little item of 26 carloads of potatoes sold by a ranchers' co-operative combine. When the car door was closed on those potatoes Mr. Rancher received his check for the shipment in full right on the spot. There was no waiting and no delay. And the price was right, too—$3.25 a hundred. It will be about the same this year—maybe more. Who wouldn't be a San Jacinto Valley orchardist?

Land isn't high there. All you pay for an orchard with two-year-old trees on it, and with waver ready to flow through concrete mains to the highest corner of each ranch is $350 to $375 an acre. Water and plenty of it, is one of the main facts that make the San Jacinto region so desirable. On one large tract there are six big pumping plants, with a total capacity of 800 inches.

Tractor Problems

Crooked Running

My tractor does not run true. It is hard to steer. There is apparently nothing wrong with the steering gear. What can be done about it? Are university tractor courses of any service to the operator if he is new to the game? I have heard them knocked pretty hard. Are they really any good?—R. P., Lodi, Cal.

Perhaps the trouble is with your steering rod. It may have become bent. If so, straighten it, which is easily done, as it is of comparatively soft metal.

University tractor courses, from all that we can learn of them, are all right. They have made many a man a capable operator who would otherwise have torn his machine to pieces.

Tractors and Horses

DO YOU believe that tractors are more economical than horses in ploughing and cultivating? Is not a small farmer a chump to trade off his horses and buy such an undependable affair as a gas engine to do his work?—P. F. M., Ashland, Ore.

As to the economy, it all depends upon the job in hand and how you treat your machine. There is no economy if you have to send it to the repair shop every little while. Read the article in January Orchard and Farm on "What the Tractor Actually Saves on the Ranch." A gasoline engine is dependable enough. It is the fool operator of it that is not dependable. As to whether a small farmer can afford to buy a tractor all depends upon what he proposes to do with it. In many cases he cannot afford to be without one.

About Overloading

Your reply to the Porterville man about overloading was interesting, but it did not say how the driver can tell when there is an overload. What about it?—R. E. L., Santa Barbara, Cal.

In running a tractor the operator soon gets to recognize the sound and regularity of the exhaust as an indication of its speed and running condition. An overload reduces the normal speed of the motor which in turn cuts down the number of exhaust sounds per minute. Any load which slows the tractor down in this manner is an overload and is more than the prescribed amount it should pull with safety.

Variation in kinds of soil, degree of moisture and topography of land make it impossible to state how many plows a certain tractor will pull. In view of the fact that the average operator of any size tractor almost invariably tries to get more out of his machine than it was built for.

Good Priming Solution

I am reading with interest your "Tractor Problems" and derive much knowledge from them. Would you kindly give formula of a priming solution that would be used for starting a 20-horsepower gas engine? The present gasoline is of such low test the engine will not answer readily, though spark and compression are good.—J. G. P., Fairmead, Cal.

To prime such an engine put two tablespoonfuls of heavy cylinder oil into each cylinder. Fill your oil can nearly full with gasoline, then put a teaspoonful of petroleum ether into your oil can. Squirt three or four squirts into cylinder, locked against compression with spark off. Then crank and turn over.

Telegraphy will solve the problem of the woman who longs for financial independence, who must earn more than the pittance that goes with the average "job." This applies to all women under 45 regardless of education. Anyone who can read and write can master the art of telegraphy. High School and College graduates who understand telegraphy, are in demand for the more important positions.
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NOW—more than ever before—you must work quickly and well. Farm and firing line must fight together.

America's acres must yield more than ever before. But the task of stimulating production is hedged about by difficulty.

Munition plants and factories have steadily drained labor from the fields. The new regulations place unskilled farm hands in the first draft class. Over a million horses already have been shipped abroad and the needs of our own army are yet to be filled.

Cleveland Tractor

You must replace muscle with machine.

The Cleveland Tractor will plow 3½ miles an hour—8 to 10 acres a day. *That equals the work of three good 3-horse teams and 3 men.*

This same time-saving speed, so profitable in plowing, is of equal advantage in harvesting, mowing, discing, spreading manure and other hauling work.

The Cleveland not only conserves time and labor but it does better, cheaper work.

Traveling on its own tracks, this sturdy little machine will go practically anywhere—even through ditches or gumbo, sand and gravel.

It will not pack the soil, nor mire, slip or flounder.

It weighs less than 3200 pounds and has 600 square inches of continuous traction surface.

Although small enough for work in orchards and among small fruit trees, the Cleveland develops full 12 h. p. at the drawbar for hauling.

At the pulley belt it gives 20 h. p.—plenty for stationary work such as shelling corn, cutting ensilage, filling silos, pumping, and many other uses on the farm where power is needed.

Rollin H. White, the famous motor truck engineer, designed the Cleveland Tractor. He uses only the best materials. Gears are the same quality as those of the finest trucks and are protected by dirt proof, dust proof cases.

Mr. White has so constructed the Cleveland that *it steers by the power of its engine.*

It will turn in a 12-foot circle. And can be housed in less space than it takes for a horse.

Put yourself in a position to produce the record crops called for by Uncle Sam—and incidentally to make more money for yourself.

Write to us today for complete information on the Cleveland Tractor and the name of the nearest Cleveland dealer. Address Dept. BQ or use the coupon.

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Please send me full information about the Cleveland Tractor.
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THE EDEN THEATER

A Brief Allegory

By Granville Barker

THIS is a story of the time when Cain and Abel were young. Adam was busy from dawn till dark digging and planting and picking in the little field he had made, and Eve was busy too in their little hut of branches and leaves, keeping it tidy and getting ready the meals, and they had no time at all for the children. Cain was eight years old and Abel seven and they were very bored. They could stand and watch father digging or they could walk about or they could run, but they mustn't run far because of the wild animals that might eat them up. So they had walked and run and crawled and hopped from the biggest tree of all to the second biggest tree and back till they were very bored indeed, and there really was nothing else to do. But one day as they stood looking towards the edge of the forest and wondering what was inside it and if there was another side, they saw on the short grass a squirrel eating a nut. He was enjoying that nut every bit of it and he had come away from the trees and his home and his friends that he might enjoy it all by himself. Behind him out of the wood came stalking a young wild-cat, and Cain and Abel watched.

The squirrel felt danger. He dropped the nut and gave a bound forward and round he turned and when he saw the cat his tail quivered. Perhaps the cat could have had him then with one big spring, but again perhaps it couldn't and a missed spring is a missed squirrel. So it lay down, there where it stood, and seemed to go straight off to sleep. And now the squirrel could have got away—but no, back he would go for that nut. And just as he reached it the cat sprang; then very soon there was no more squirrel.

It made Cain and Abel feel rather solemn as they began their walk again backwards and forwards between the two big trees. Presently Abel said:

"The squirrel was holding the nut like this and when he felt the cat was there he turned his head twice—like this he turned it—and then he jumped!"

Abel jumped, and it wasn't at all unlike the squirrel.

"I don't believe the cat was really asleep," said Cain.

"No," said Abel, "but it wanted the squirrel to think so. And then it jumped, like this." And he jumped again.

"Not a bit like that," said Cain.

Then Abel jumped five or six times more and jumped a little differently every time. But still Cain said that it wasn't like it a bit.

Abel was a slim child with straight hair and large dark eyes, while Cain, as everyone remembers, was a hefty youngster, red and curly-headed, and had a turned-up nose.

"If you'd sit down there like the squirrel," said Abel, "I believe then I could jump just like the cat."

"I won't," said Cain, "and you don't look like the cat. You be the squirrel and I'll show you how the cat jumped. I know how. I feel like it."

So Abel took a little pebble for the nut and squatted with his back to Cain and lifted his head and turned it and jumped and swerved around, and there was Cain with his head down and his eyes shut, just as the cat had been. Then Abel crept back for the pebble and Cain sprang, oh, very like the cat indeed, for his eyes went quite red. He sprang so hard and fell so heavily that Abel went clean over backwards and hit his head against a stone there was and hurt himself and howled and howled.

Eve, who was getting the sweet potatoes ready for dinner, wiped her hands hastily on her fig-leaf apron and ran to see what the noise was.

"He's a cat and I'm a squirrel," sobbed Abel, "and he's killed me for his dinner, and my head's hurt awful—oo!"

"Dear me, what a tragedy!" said Eve.

Cain called Abel a baby to cry, but Eve kissed him and dried his eyes and smoothed his hair. She was always smoothing his hair. Then she took them both by the hand and walked them up to the top of the little mound from which the lake could be seen. It was springtime, and among the stones and the scant grass down by the water's edge two water-birds were building their nest. One of them ("That's the wife," said Eve) was standing on one leg by the spot they had chosen, preening her feathers and looking very proud, while the other was running around and making a lot of fuss, picking up bits of grass and leaf and stick and scuttering in to add them to the growing nest.

"Just like father," said Cain.

"But they must have a nice house, you see," Eve told the two, "or what would happen to the little Cains and Abels when they arrive?"

Abel sniffed, his head felt bad.

"You might play at being birds till dinner's ready," said Eve. "But you can't stand on one leg, Abel, can you?"

"Course I can," said Abel.

So he did, there on the top of the little mound, sniffing a little from time to time. Cain ran round and got bits of leaves and stick and soon there was a nest. They put round stones in it for eggs and Abel sat on them and then they talked about things in general and in particular about how nice it would be when the little feathered Cains and Abels came. It seemed only a short time till the sweet potatoes were done and Eve was calling them to dinner.

This probably happened on a Tuesday. Though we can't be sure of the day or the month or even quite sure of the year. If we could the anniversary would always be celebrated in the theater. For on that day the two first plays were invented and acted—a tragedy and a domestic drama.

California in Spring

By Edwin Markham.

A BLOSSOMING bough against the sky,
And all my blood is aleap with life,
As though glad violins went by
In wild delicious strife.

And the Suisun hills again are green!
And I am a boy in the canyons deep,
Where the gray sycamores flicker and lean,
And waters plunge and sleep.

A light, quick wind blows into my heart,
Faint with the breath of apple trees,
And my lyric lark awakes with a start—
And orchards like white seas!

Farm machinery is the artillery of agriculture. In what condition will your "field pieces" be for the spring drive?

4 H.P.—190 lbs.

The 4 H. P. Cushman Handy Truck is the most useful outfit ever built for farm work. Engine weighs only 190 lbs., and entire outfit only 375 lbs.

Besides doing all farm and household jobs, this 4 H. P. Cushman may be lifted from truck and hung on rear of binder during harvest to save a team. In wet weather it saves the crop.

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has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load. We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

Write AERMOTOR CO., 2500 Twelfth St., Chicago

Rheumatism

A Home Cure Given by One Who Had I

In the spring of 1893 I was attacked by Muscular and Inflammatory Rheumatism. I suffered as only those who have it know, for over three years. I tried remedy after remedy, and doctor after doctor, but such relief as I received was only temporary. Finally, I found a remedy that cured me completely, and it has never returned. I have given it to a number who were terribly afflicted and even bedridden with Rheumatism, and it effected a cure in every case.

I want every sufferer from any form of rheumatic trouble to try this marvelous healing power. Don't send a cent; simply mail your name and address and I will send it free to try. After you have used it and it has proven itself to be that long-looked-for means of curing your Rheumatism, you may send the price of it, one dollar, but, understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer when positive relief is thus offered you free? Don't delay. Write today.

Mark H. Jackson, No. 660D, Gurney Bldg., Syracuse, N. Y.

Mr. Jackson is responsible. Above statement true.—Pub.

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Truck and Tractor

An interesting illustration of the value of automobile trucks is taken from the experiences of a fruit growing company in Virginia, says Dun's Review. The speed of delivery, the heavy loads, the great number of trips possible each day over a long distance, and the reduced cost of labor and maintenance could hardly be more strikingly set forth than in the case of this concern. In the fruit business speed of marketing is essential. Peaches can not be kept more than a few days and will then decrease in value very rapidly. The fruit-growing company referred to has a young growing orchard which this year was expected to mature about 65 carloads of peaches, but, on account of the fact that the railroad station where the peaches could be loaded into refrigerator cars was five miles distant over an unimproved mountainous road, the transportation problem was no easy one.

In previous years six-horse teams had been used. They required a driver and an extra man to work the brakes on the down grades. They could not handle more than 75 crates at a single load and, owing to the five-mile haul, could make but two trips per day. The maximum load of peaches for any one day was six cars—about 2640 crates, while the aver-average load was three cars a day—about 1320 crates. To deliver the season's crop required from eight to 17 six-horse teams.

What Size of Tractor?

By A. H. Gilbert.

It may sound peculiar to some of you to consider horse-power of tractors in pounds pulled. At the same time, the rate at which the tractor travels has much to do with the number of pounds it can pull. For my own benefit and for the benefit of my students, I figured out the difference in pounds to be expected of a tractor when traveling at its normal speed on low and on high. From this reckoning it became very evident that the amount a tractor can pull depends upon how fast it is traveling. There is a certain definite rule that, for instance, if you have a tractor that will pull 3000 pounds at two miles an hour, at four miles an hour this tractor will pull just half that amount.

The pull in pounds for a 14-inch plow bottom runs around 300 to 500 pounds. If you are considering a three-plow tractor, you will want one that will pull at least 1500 pounds or more. A tractor that will pull 1500 pounds is supposed to do this on level ground with good footing. Take for example an 8-16 tractor. This tractor traveling at two miles per hour will pull 1500 pounds.

Suppose this tractor is not working perfectly, or is traveling on rough ground, you can see why you have not the right to expect it to pull three plows in case it is supposed to pull only two. The thing to do in figuring out the size of tractor and the number of plows you want to use on your farm is to determine about what kind of soil you have to work with. If it requires five horses to pull an ordinary 16-inch plow, you know your ground is hard. The depth at which you wish to plow is also a factor. It is well to bear in mind that the average 14-inch plow is not constructed to plow deeper than eight or nine inches. As a matter of fact, it will do its best work around seven or eight inches, or about half its width in depth.

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You can't meet the urgent need of cultivating increased acreage this year with old-style out-of-date tools and methods. Get Planet Jr Seeders, Wheel-Hoes and Cultivators, and double your acreage. They are strong, yet so light they can be readily used by a woman or boy. Fully guaranteed.

No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel-Hoe, Cultivator and Plow sows all garden seeds (in drills or hills), plows, opens furrows and covers them, hoes and cultivates all through the season. A hand-machine that does the work so easily, quickly and thoroughly that it pays for itself in a single season.

No. 8 Horse Hoe does a greater variety of work in corn, potatoes, tobacco, cotton, and other crops requiring similar cultivation, and does it more thoroughly than any other one-horse cultivator made. It is stronger, better made and finished. Lasts longer. Its depth regulator and extra-long frame make it steady-running. Cultivates deep or shallow and different width rows. 15 other styles of one-horse cultivators—various prices.

S L ALLEN & CO Box 1106D Philadelphia
New 72-page Catalog, free!

Illustrates Planet Jrs doing actual farm and garden work, and describes over 55 different tools, including Seeders, Wheel-Hoes, Horse-Hoes, Harrows, Orchard-, Beet-, and Pivot-Wheel Riding Cultivators. *Write postal for it today!*

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Samson Sieve-Grip Tractors will stand by you in the rush seasons. Their steel construction, dust-proof qualities, over-size bearings, and thorough lubrication insure constant service at LOW COST.

Full 25 H-P is developed for stationary work, aside from power for plowing, cultivating, harrowing, hauling, etc. The usefulness of this size machine gives popularity to

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TRACTORS

Orders for Spring delivery are coming in rapidly. Sieve-Grips will help farmers increase farm profits and INCREASE CROP PRODUCTION. Let one help you this season.

SAMSON SIEVE-GRIP TRACTOR CO.
(Division of General Motors Corporation)
Stockton, California.

Gentlemen, send me your catalog and magazine "Samson Siftings." I farm _____ acres of land. Name _____ Address _____

For the Farm Woman

Edited by Ruth Roberts

"I THINK it's just terrible the way the government is cutting off our white flour. My family won't eat any other. How about you, Mrs. Smith? You're not observing any of the wheatless or porkless days? Well, I don't blame you. I for one think it's unnecessary."

This sort of talk has taken place between many women in many places, I am ashamed to say.

Have you enlisted, reader? Every woman in America has been asked to join the fighting forces under Mr. Hoover and the battleground is your own kitchen. Without your help the Government will be obliged to adopt drastic measures regarding food regulations which will be unpleasant for all and a disgrace to the women of the United States.

There is no excuse for any one not following the requests of Food Administrator Hoover, for free information in regard to it is furnished by Washington. If you do not care to write to Washington and desire wartime recipes or knowledge of the ways and means of teaching food saving and home economics through your nearest school, I will be glad to help you or put you in touch with the proper authorities.

In the name of patriotism alone, the women all over the land should be glad to carry out the simple yet very necessary demands of our Government. Why will you allow your own men and the husbands and sons of other women to go out and meet the Hun on the battle line and yet turn away in ignorance, laziness or indifference when your own important part in this glorious struggle for right is set before you?

But if this is not enough, then in the name of the women of the devastated lands of Belgium and France, we should be ready to serve.

There may have been a time when you felt inclined to doubt the stories of the atrocities of the German foe, but that time has passed as proof after proof has been piled up by our own returning men.

Captain A. P. Simmons, a United States military observer in Germany during the mobilization, says:

"Don't let anyone tell you that German atrocities are merely fiction. One of the most gruesome sights I ever saw was the impaling of Belgian babies on the ends of German bayonets and their return to frantic mothers. If you knew the horrors that patient, suffering little Belgium has been through your blood would freeze in your veins."

Will you have one wheatless meal a day, observe all the wheatless days, the meatless days, the porkless days according to the Government request?

Of course, the farmer's wife must use her common sense in the matter of pork saving. Her problem is different from her city sister.

Wheat must be saved and other grains substituted.

You can have contests in wheat and meat saving through your school, and all directions and information will be furnished by the Federal Food Commission.

Remember what you are asked to do amounts to almost nothing in comparison to the sacrifices of France, and yet it is vastly important that you do these things and do them cheerfully.

Don't say you are too far away to be interested. Do not question the commands given by your leaders.

Step into line, be a soldier; we all despise a coward or a slacker.

I salute you, comrades!

RUTH ROBERTS.

Stretching the Meat

IT IS possible to make a little meat go a long way. Meat pies and meat stews offer a variation for every day in the month. In these combinations a small piece of meat can be stretched to flavor a big dish. Try these hot savory dishes, the whole family will like them.

Potted Hominy and Beef

5 cups cooked hominy.
4 potatoes.
2 cups carrots.
1 teaspoon salt.
¼ pound dried beef.
2 cups milk.
2 tablespoons fat.
2 tablespoons flour.

Melt the fat, stir in the flour, add the cold milk, and mix well. Cook until it thickens. Cut the potatoes and carrots in dice, mix all the materials in a baking dish, and bake for one hour.

Tamale Pie

2 cups cornmeal.
2½ teaspoons salt.
6 cups boiling water.
1 onion.
1 tablespoon fat.
1 pound Hamburg steak.
2 cups tomatoes.
½ teaspoon cayenne pepper or
1 small chopped sweet pepper.

Make a mush by stirring the cornmeal and 1½ teaspoons salt into boiling water. Cook in a double boiler or over water for 45 minutes. Brown the onion in fat, add the Hamburg steak and stir until the red color disappears. Add the tomato, pepper and 1 teaspoon salt. Grease a baking dish, put in a layer of cornmeal mush add the seasoned meat, and cover with mush. Bake 30 minutes.

Fish Chowder

Rabbit, fowl, or any meat may be used instead of the fish, or tomatoes instead of milk. Carrots may be omitted.

1½ pounds fish (fresh, salt, or canned.)
9 potatoes peeled and cut in small pieces.
1 onion.
2 cups carrots cut in pieces.
3 cups milk.
Pepper.
3 tablespoons flour.
1 tablespoon fat.

Fry chopped onion in fat for five minutes. Put fat, onions, carrots and potatoes in kettle and cover with boiling water. Cook until vegetables are tender. Mix flour with one-half cup cold milk and stir in liquid in pot to thicken. Add the rest of the milk and the fish which has been removed from the bone and cut in small pieces. Cook until the fish is tender, about 10 minutes. Serve hot.

Wheat and Meat

THE Food Administration gives out rules for observing wheatless, meatless and porkless days. These are changed from time to time, but one may keep informed through the daily papers.

We should all have one wheatless meal every day and one wheatless day a week. By wheatless they mean to eat no wheat products. Corn, oats, barley and rye are the substitutes.

Remember that macaroni, spaghetti, any Italian paste or noodles are made from wheat, and do not serve them when you have bread at the same meal.

In the use of fats, I trust you women of the farm to use good judgment. If you have animal fats on hand it may be more of a saving for you to use them than to buy vegetable substitutes.

The substitutes for fat, such as lard and butter, are cottonseed oil, peanut oil and drippings. Use little pastry. When you make pies use one crust instead of two. Try the New England deep apple pie with only a top crust. Do not fry in deep fat.

In sugar saving we can use less sugar in tea and coffee. Try cooking breakfast cereals with chopped figs, dates or raisins. You will not need to add sugar at the table.

Use molasses, honey or other syrups for sweetening.

Get a Government pamphlet giving directions for making syrup from apples and other fruits.

The New Iceless Refrigerator

Sponge Woolen Materials

ALL woolen materials should be sponged before being made up in order to avoid shrinkage and water spotting.

Lay the material on a table that has been padded and covered smoothly with a cloth that is free from lint. Cover the woolen material with a wet cloth and press with a fairly hot iron until the cloth is almost dry, when it should be removed and the woolen itself pressed until it is dry. In pressing, the iron should be lifted and placed rather than pushed along. If the material to be sponged has a nap, the pressing should be done with the nap.

If double width material is to be sponged, it may be left folded, right side in. The wet cloth on one side is sufficient to steam both thicknesses, but both sides should be pressed in order to insure dryness.—Beryl Dixon.

The more fats we can send to the allies, the slipperier will be the skids placed under German autocracy.

An Iceless Refrigerator

By H. D. Dreisbach.

ONE of the very best and cheapest plans for keeping all kinds of foods exceedingly fresh and nice for the table was recently brought to my attention in an iceless cement refrigerator invented by V. V. Pittman of Selma, Cal.

For about 25 years, Pittman had been experimenting with cement in all its various phases when he "stumbled" onto a system for keeping foods fresh in what is now known as an iceless cement refrigerator. The success of this system of cooling, and it is a real success, is accomplished through the "old law" of evaporation of water, which keeps foods in a far better state of preservation than the old-fashioned ice chest or box.

The cooling system of this iceless cement refrigerator is very simple and complete. There is a round tank at the top. This tank holds about 15 gallons of water which drips or trickles from this reservoir through four small valves into a rim basin or trench encircling the outer wall below. From this trench the water slowly drips and follows a downward course, evenly distributing the water over the sand-coated surface clear to the bottom or floor of the refrigerator. Finally the surplus water, which has not evaporated, escapes through an overflow pipe at the base.

Evaporation Does It

At no time does the water reach the inside of the food chamber and only after it has reached the bottom section or floor of the refrigerator does it reach the inside in the shape of moisture. The bottom being on a level plane becomes moist and should stay damp at all times. This furnishes humidity for the food chamber and bread, vegetables and foods of all kinds keep exceedingly fresh and nice during the hottest weather.

The sand, coating the outer wall, is a special kind and is employed to give the greatest capillarity through minute tubes or interspaces. Pittman experimented for a long time with many kinds of sand, finally finding a certain kind of gray sand in the Kings river and located twelve miles from the inventor's home. This sand-coat gives the refrigerator what the inventor calls a "fawn finish." Before this sand-coat was employed, the water would run straight down and away before any of it could evaporate. Pittman stuck to the idea that evaporation was the whole of a successful cooling process, so finally hit upon the plan to put on a sand-coat, after a long search, he found just the right sand, and it works perfectly.

An Enamel Discovery

"Then the next difficulty," said the inventor, "came in experimenting with enameling the inside by enameling the tops of the shelves only, then both sides and later the whole interior. The enamel would come off and make trouble."

Pittman sent all over the United States and tried everything he heard of or read about. Many and most severe tests were made. Finally he found just what he was looking for—an enamel that sticks perfectly. The inventor makes two sizes—the larger, model A and the smaller model B, for large and small families.

The shelves are securely anchored to a rod which extends through the center of the circular shelves from the bottom to the top of the refrigerator, thus allowing the whole interior to revolve with the slightest touch. The shelves are as smooth as glass, each

shelf having a loading capacity of 100 pounds.

Two holes, fitted with screens, near the top and two at bottom permit of perfect ventilation. The refrigerator proper is set on a large round disc which sits on two cement foundation blocks. A rim basin or trench is provided in this round disc into which the water drips from the bottom and outer wall, thus making the refrigerator absolutely ant-proof.

This iceless cement refrigerator is made as nearly everlasting as anything can be made. The material used is high-grade throughout and the steam tempering process employed makes the cement almost as hard as iron. The inventor claims he has gone farther in small unit construction than anyone anywhere. The refrigerator throughout is reinforced with a heavy wire mesh which prevents warping or twisting out of shape in any way whatever. Once installed it stands firm and strong on its own weight, but can be easily and quickly taken apart and moved anywhere.

As compared with the old-fashioned refrigerator, this iceless cement refrigerator eliminates all ice bills and can be used where there is no ice to be found, as not a bit of ice is needed. Furthermore, it needs very little care on the part of the housewife.

Emotions Are All Right

By Winifred Black.

I AM tried of hearing things called "too emotional"—as if the emotions were sort of evil relations that we are all ashamed of, and never ought to acknowledge.

What's so wrong about the emotions, anyway?

Are you ashamed of yours, or afraid of them?

I'm not of mine.

I like my emotions. They're the one thing in the world that I live for.

I like to be justly cross and get good natured again. I like to be doubtful and find my faith again.

I like to be thirsty—so thirsty that I can fairly hear the lemonade pouring out of the pitcher—and then get the lemons, and make a big pitcher full—and drink it.

I like to cry when I'm sad, just for the pleasure and relief of crying, and once in a while (whisper) I like to slam the door. Don't you, honestly, now?

What would this world be without a few emotions in it, and are all emotions bad, just because they're emotional?

What sent your boy to the recruiting sergeant to enlist to fight for his country's flag? Was it the rating he got in arithmetic in the high school? Was it the number of facts he has at his fingers' end, or did he go because his heart was stirred by an emotion we call patriotism?

What sends your girl to the Red Cross to work day in and day out but an emotion?

What made you go down into the poor district last week and see that there was a good dinner in at least one forlorn place, but an emotion of kindness?

You didn't add up a column of figures or take a course in true history of the discovery of the electron before you did it, did you?

How did you ever happen to leave your father's house and follow a man you scarcely knew out into a great, big, lonesome strange world? Didn't your emotions have something to do with that?

That chubby little rascal who's working so hard this very minute to get his own toe into his mouth—doesn't it make you emotional just to look at him?

Three cheers for the emotions! There wouldn't be any world at all, or any people in it if some of us were not emotional now and a while, anyhow.

Nursery Deception

IN most lines of business where deception has been practiced on a customer, it is only a question of a very short time when he learns of the sharp practice. It is in this one respect that the nursery business differs from practically all other lines.

To have nursery stock "true to name" is what every nurseryman aspires to, as being the pivotal point in his business. He cannot afford, however, to consider that his duties are completed even after having fulfilled this part of his obligation; for there are a number of other considerations. Among these may be mentioned the securing of buds, cuttings, scions from trees which are not only thrifty but which are recognized for producing fruit of the very best quality; to have the trees, as far as conditions will permit, free from disease and insect pests; to grow trees in such localities and in soil where trees of the very best quality will be produced; to deliver to his customers only such stock as he would be willing to plant himself, and to pack the same in such a manner as will insure the arrival of the stock in the very best of condition.

His obligation does not end even then, for there is still a greater duty to the customer, and that is to be in the position to render a definite service in advising him what to plant. —George C. Roeding.

Sugar Cured Hams and Bacon

Rub each piece of cooled meat with salt and allow it to drain over night. Pack in a barrel with hams and shoulders in the bottom. For each 100 pounds of meat, weigh out 8 pounds of salt, 2 pounds of brown sugar and 2 ounces of saltpeter. Dissolve in 4 ounces of water and cover the meat with the brine. The brine should be boiled for use during the summer. Bacon should remain in the brine four to six weeks; hams six to eight weeks. The meat should keep through the summer if properly smoked.

Your Flag and My Flag

YOUR flag and my flag,
And how it flies today
In your land and my land
And half a world away!
Rose red and blood red
The stripes forever gleam
Snow white and soul white,
The good forefathers' dream,
Sky blue and true blue, with stars to gleam aright—
The gloried guidon of the way, a shelter through the night.

Your flag and my flag!
To every star and stripe
The drums beat as hearts beat
And fifers shrilly pipe!
Your flag and my flag!
A blessing in the sky;
Your hope and my hope—
It never hid a lie!
Home land and far land and half the world around,
Old Glory hears our glad salute and ripples to the sound!

Your flag and my flag!
And, oh, how much it holds—
Your land and my land—
Secure within its folds!
Your heart and my heart
Beat quicker at the sight;
Sun kissed and wind tossed—
Red and blue and white.
The one flag—the great flag—the flag for me and you—
Glorified all else besides—the red and white and blue!
—Wilbur D. Nesbit.

There is no closed season for rat killing.

Trade-Mark

One of the many fine values in Durable-DURHAM Hosiery.

BANNER

A stylish medium weight stocking for all year-round wear. Made from soft combed yarn, lisle-finish. With its wide elastic top, strongly double reinforced heels and toes and smooth, seamless and even feet and toes, this stocking can be worn with satisfaction by the most particular women. *Black and White.*

Price 25c pair

HOSIERY of splendid wearing qualities—better values than ever—it is the duty of the women in every family to know the advantage of buying

DURABLE
DURHAM HOSIERY

FOR MEN, WOMEN AND CHILDREN
Made Strongest Where the Wear is Hardest

Hosiery for work or play or dress—good looking and a real economy. Heels, soles and toes are *strongly* reinforced; legs are full length; tops are wide, elastic and strong; feet and toes are smooth, seamless and even; colors won't fade; sizes are correctly marked.

Ask for Durable-DURHAM Hosiery at your favorite store. Buy it for every member of the family. Prices 15c, 19c, 25c and 35c pair.

Women's silk-mercerized hosiery (*Carrolina*) with patented anti-run stitch, 35c; men's silk-mercerized socks (*1700 G. S.*), 25c.

Write for Booklet showing all styles with descriptions.

DURHAM HOSIERY MILLS, Durham, N.C.

No Ice Needed—Iceless Refrigerator Keeps Food Better Than Old-Fashioned Refrigerators

Mrs. Kopek writes: "If I could not purchase another Iceless Refrigerator, I would not take $150 for mine." Mrs. Campbell writes: "I would never think of using an old-fashioned refrigerator again." Mrs. Crisman writes: "It is even better than you represented it." Mr. Cook writes: "The best cooling device on the market today." C. D. Brown writes: "Your cooler certainly is all right and I am well pleased." Frank Newell writes: "I have no fault to find with the cooler."

Most perfect cooling system. Foods keep exceedingly fresh in hottest weather; keeps cool by evaporation; made entirely of cement, reinforced; made in sections; easy to set up. Shipped anywhere. Our steam tempering process makes cement almost as hard as iron; does not warp or twist; sanitary in every way; not affected by acids nor other strong solutions; does not rust; is antproof; revolving cement shelves; inside enameled throughout; perfect ventilation; no repairs; pays for itself in two seasons; only refrigerator of kind made; two sizes; women praise it; demand doubled every year; impossible to sell through dealers at present prices; sold direct.

FREE The "Iceless Era," devoted to interests of Iceless Cement Refrigerators—Free.

Pittman-Hampton Co., Manufacturers, Selma, Cal.

Daily Milk Record Sheet

For Ten Cows, Size 10 ins. by 17½ ins.

6 Sheets for $ .25, Postpaid 25 Sheets for $ .75, Postpaid
15 Sheets for $ .50, Postpaid 50 Sheets for $1.25, Postpaid
100 Sheets for $2.00, Postpaid

If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.
Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

ORCHARD AND FARM
Examiner Building, Los Angeles, Cal.

A Piano House of High Ideals

In the last quarter of a century Sherman, Clay & Co. have occupied a position on the Pacific Coast, second to none, building carefully from day to day a reputation for selling only goods of merit, of true musical worth and asking only fair and consistent prices.

Our customers and friends are legion. We are most careful what we recommend and when we do recommend, it is with the desire to serve the customer and serve him well. We study his needs with the desire to place in his home the instrument that best suits his purpose without it being an undue strain upon his pocketbook.

We have only one price—the price tag on every instrument is in plain figures—there is positively no deviation from that price.

We offer no "special" inducements, no insurance, no "club" prices, no free music or scarf (bench or stool of course are considered part of the piano). We do not have "sales" on one pretext or another. Our prices are fair. We aim to be consistent—to sell good reliable instruments at a reasonable price.

We pay the freight anywhere in our territory. We gladly arrange convenient payment terms on any instrument.

If you are in the market for a Piano or a Player Piano, it is to your interest to call upon us or write us for information—to see what we have to offer.

We invite you to call at any of our stores—or write us asking for illustrated catalogues and prices.

We are dealers in Steinway and other Pianos, Pianola Pianos, Aeolian Player Pianos, Etc.

Sherman, Clay & Co.

Kearny and Sutter Streets, San Francisco.
Fourteenth and Clay Streets, Oakland.
Ninth and J Streets, Sacramento. Merced and J Streets, Fresno.
325 E. Main Street, Stockton. 190-192 S. First Street, San Jose.
Stores also at Reno, Santa Rosa, Vallejo, Portland, Seattle, Tacoma, Spokane.

Can be opened or closed in three seconds by a child.

Ready for instant use when opened. Nothing about it to indicate that it conceals a most luxurious bed.

DIVAN-BED

No home complete without one.

In the daytime a davenport, at night a bed. Occupies less space than a piano. Adds to the luxury of your home. Opens like a jackknife. It is made in any covering—

Genuine Leather. Imitation Leather, Tapestries, Velours and Damasks

Quarter sawed oak, or a beautiful mahogany finish. Will last a lifetime. TAKES ANY FULL SIZE MATTRESS.

Can be had at any dealer's. If your dealer cannot supply you, write us.

Continental Furn. Mfg. Co.
1640 Bryant Street, San Francisco.

DEALERS

The two largest manufacturers in the United States are now furnishing us with the steel parts used in the construction of the DIVAN-BED. From now on we will be able to fill orders.

Continental Furniture Mfg. Co.,
1640 Bryant St.,
San Francisco:

Send me full description of the DIVAN-BED.

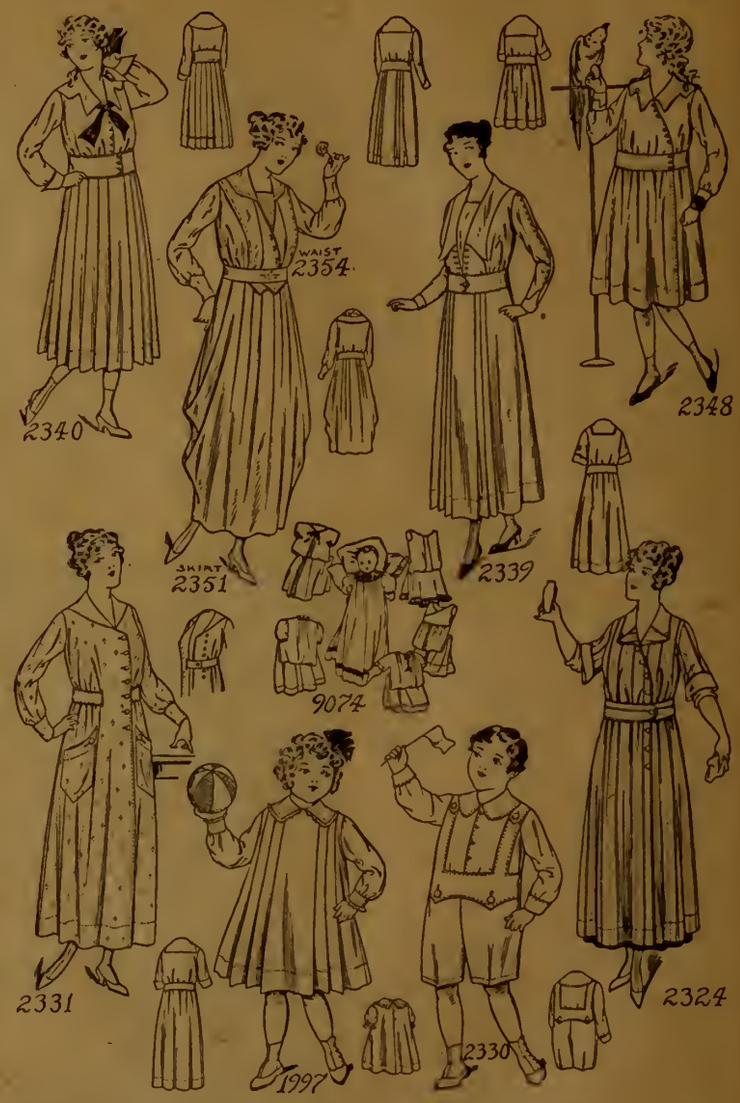
Are you interested in other furniture for your home? ———Yes. ———No.

Name .....

Address .....

Pretty Costumes

Selected by Ruth Roberts.



SOME of the spring costumes and house dresses shown in these patterns are very pretty. But in this lot, as in the others I have selected for Orchard and Farm, they really must be seen to be appreciated.

One of the best this month is the ladies' costume, the waist of which is shown in No. 2354 and the skirt in No. 2351.

The misses' and children's dresses this month are particularly neat and effective. RUTH ROBERTS.

2340—Juniors' Dress—Cut in 3 sizes: 12, 14 and 16 years. Size 14 will require 5⅜ yards of 44-inch material. Price, 10 cents.

2354-2351—Ladies' Costume—Waist 2354 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 2351 cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches waist measure. To make the entire dress in size 38 will require 8⅜ yards of 36-inch material. The skirt measures about 1¾ yards at the foot. TWO separate patterns, 10 cents for EACH pattern.

2339—Ladies' Dress—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 7¼ yards of 36-inch material. The skirt measures about 3 yards at the foot, with plaits drawn out. Price, 10 cents.

2331—Ladies' House Dress—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 7 yards of 36-inch material. The dress measures about 2½ yards at the foot Price, 10 cents.

2348—Girls' Dress—Cut in 4 sizes: 8, 10, 12 and 14 years. Size 12 requires 4 yards of 44-inch material. Price, 10 cents.

9074—Infants' Set—Cut in one size It requires for the dress 2½ yards of 36-inch material. The slip will take 2¼ yards, and the petticoat, night gown and kimono will each require 2 yards. The Barra coat will require one yard of flannel for the skirt and ½ yard of cambric or muslin for the body. Price, 10 cents.

1997—Child's Dress—Cut in 5 sizes: 6 months, 1, 2, 3 and 4 years. It requires 2½ yards of 36-inch material for a 2-year size. Price, 10 cents.

2330—Boys' Suit—Cut in 4 sizes: 2, 3, 4 and 5 years. Size 4 requires 1¼ yards of 44-inch material for the waist and 2⅛ yards for the trousers. Price, 10 cents.

2324—Ladies' Work Dress—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6¼ yards of 44-inch material The dress measures about 2½ yards at the foot. Price, 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date spring and summer 1917-1918 catalogue, containing 550 designs of ladies', misses' and children's pat

NEW AND SECOND-HAND
LUMBER—PLUMBING
WRECKING—WRECKING

See Jobs—Buy Now
Save Cartage

SEVERAL LARGE JOBS IN OAKLAND.
2,000,000 FT. LUMBER.
100,000 FT. GALV. IRON.
BATH TUBS, BOILERS AND TOILETS.
BOUGHT BEFORE ADVANCES.
2000 BEST READY ROOFING, $1.30, $1.50 COMPLETE.

See us for the largest stock and greatest savings. Absolutely everything for an entire building, and various Ranch Accessories, as Hog Wire, Barb Wire, Poultry Netting, Doors, Windows, Mirrors, Tiling, Mantels, Nails, etc.
Get our car lot estimate.
Every shipment guaranteed.

BLOCK
11th and Market sts., S. F.
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SYMON BROS.
Wreckers
Correspondence to Main Office.
1527 MARKET ST., S. F.

ANOTHER BIG OFFER

PRESERVING KETTLE—FREE
Six Quart Gray Enamel With

3 lbs. 3 QUALITY Coffee $1

Freshly Roasted, Deliciously Flavored. So Good You Will Always Want It.

Dollar Bill Brings Both, Parcel Post, Prepaid.
Two Million Satisfied Customers in U. S.
Grand Union Tea Co. 46 Years in the Business.
Oakland. Fresno. Los Angeles.

3 Cents a Word

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23d of the month. Address Advertising Department, Orchard and Farm, Examiner Building, Los Angeles, California.

Try Cords' Pine Needle Cough Bonbons
5c a package

Best in results and taste. Good for the digestion. For sale by Druggists, Grocers, Newsstands, etc.; also by mail, no less than 5 packages.
PACIFIC PINE NEEDLE CO.,
P. O. Box 95, Fruitvale Station,
Oakland, Cal.

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terns, a concise and comprehensive article on dressmaking; also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker.

Use Coupon in Ordering Pattern

Herewith find.....cents, for which send me the following patterns:

Pattern No. .....Size.....

Pattern No. .....Size.....

Pattern No. ..... Size . ...

Be sure to give number and size. Send orders for patterns to ORCHARD AND FARM, "Examiner" Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below.

A Cow to the Acre

F. F. SHOWERS, a Wisconsin farmer, maintains forty head of dairy cattle on forty acres of land. "Forty cows on forty acres" is his slogan, and it has led him to much more than average success as a dairyman. Of the forty head of Jerseys, seven are grades and the others are purebred animals, says the Farm Journal.

For several years without a break this man has had one of the highest scores at the local condensing plant where he disposed of the milk. His best cow has a record of 21.53 pounds of butter in seven days. This dairyman kills no calves and sells none for veal. He seems to have no trouble in disposing of them for breeding purposes at prices ranging from $60 to $80 a head.

How does he do it? By raising alfalfa to help maintain both the herd and the soil fertility. Alfalfa is used largely in feeding the cows. It meets the requirements of a good roughage, being rich in crude protein and lime. The calves are raised entirely on alfalfa hay and skim milk.

Hog Cholera Prevention

Keep the hog cholera germs away from your hogs, if possible.

If cholera gets into your herd, get a competent veterinarian and vaccinate your hogs at once.

Here are the ways cholera germs are likely to be carried to your hogs:

By owners of diseased hogs.
By your visiting diseased herds.
By hog buyers and visitors.
By dogs, cats and other animals; pigeons, crows, buzzards, etc.
By pasturing hogs near sick ones.
By purchasing new stock.
By streams running through the farm.
By exchanging work and by threshers.
By wagons, buggies and farm tools.
Keep hogs free from lice and worms.
Keep charcoal, slacked lime, soft coal and salt in the hog lot.
Keep the hog pens clean.

Alfalfa Men Organize

THE California Alfalfa Growers' Association has been organized at Riverside with J. L. Farrar as secretary and manager. The objects of the organization are to market the products of the members, to obtain help and for other purposes. While a preliminary organization had been formed some time ago and 200 cars were marketed for the year, the new organization expects to market 3000 cars during 1918. The offices of the organization will be on Ninth street, adjoining the Farm Bureau, Riverside, Cal.

A Wonderful Goat

CALIFORNIA GRETCHEL, a Toggenberg milch goat at the University Farm, Davis, is a new world's record holder for milk production. Her yield has been approximately 2880 pounds of milk in a year, 24 times her body weight. She has been photographed standing on two of four 10-gallon cans, which were required to hold her highest month's production of milk.

Do you point with pride to your bathroom

or is it unsightly because of old fashioned plumbing fixtures.

Modernize your bathroom by having **PACIFIC** Plumbing Fixtures installed.

Their beautiful graceful designs, simple, easy to clean patterns and pure white highly glazed surfaces will make your bathroom a room to which you can conduct your guests with every feeling of pride.

Although **PACIFIC** Plumbing Fixtures are of superior quality, they cost no more than any other reputable brand, and are guaranteed forever against any defects in workmanship or materials.

Before you build or remodel, write for a copy of 'The Book of Bathrooms'. It is a 56 page book brim full of ideas. Free on request of

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HEREFORD CATTLE SALE
—BY THE—
Pacific Coast Hereford Cattle Breeders' Assn.
UNIVERSITY FARM, DAVIS, CAL.
WEDNESDAY, APRIL 10TH, 1918.

This offering will be made up of about 45 females and 40 bulls. All Western bred. Consigners to the sale—Cazier & Sons, Wells, Nevada; H. M. Barngrover, Santa Clara; H. H. Gable, Esparto; W. J. Bemmerly, Woodland; D. O. Lively, Mayfield; Dean Duke, Likely; Simon Newman Co., Newman, California.

FRED REPPERT, Auctioneer.
WRITE FOR CATALOGUE TO
D. O. LIVELY 215 Hobart Bldg. San Francisco

Golden Gate Weed Cutter
Kills the Weeds and Cultivates the Soil

Greatest weed killer on the market. Cuts them off clean, under the surface, close down to the roots. Besides, it breaks up the ground so thoroughly that one user says he saved $200 in a single season because after cutting the weeds he did not have to plow. Cuts seven feet or less. Weighs but 230 pounds. Cut adjustable to any depth. Constructed of steel throughout. No other implement like it.

WRITE FOR CIRCULAR which illustrates and describes the Sigurd Weed Cutter and contains letters from many users.

C. G. Sigurd, Manufacturer.
Capital Ave. and McKee Road, San Jose, Cal.

FARMERS' CLASSIFIED MARKET PLACE

Our rate for classified advertisements on the Market Place pages is 3 cents per word for each insertion. Advertisements must reach us before the 23d of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

REAL ESTATE

NO PAYMENT DOWN.
FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS," AT ORLAND, CAL.; WATER FURNISHED BY UNCLE SAM; WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS; NO BETTER SOIL FOR ALFALFA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET, "ORLAND FARMS."
F. D. BURR CO.,
219 MONTGOMERY ST.,
SAN FRANCISCO, CAL.

EL DORADO COUNTY RANCH—640 acres, all under fence; 100 acres summer fallow, seeded to grain, looking fine; 300 acres under cultivation; 5 acres orchard; 2 sets of buildings, houses 8 rooms each; barns and outbuildings; all farming machinery, selfbinder, mowers, plows, harrows, wagons, blacksmith shop and tools, 4 work horses, 10 head of cattle; 5 good wells; county road runs through place. A bargain, $30 per acre; terms on part; no trade. Deal direct with owner. Address Box 810, Orchard and Farm, Examiner Bldg., Los Angeles, Cal.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Texas.

FOR SALE—Good small dairy ranch; green grass and spring water year around; 8 miles to condensary on river; 44 acres, one-third bottom; also 28½ acres bottom; no buildings, but fenced; my price $3000 each, one-half cash. Address Box 186, Bandon, Coos County, Oregon.

FOR SALE—40 ACRES CHOICE foothill land, three miles from Exeter and Lindsay, close to new paved highway and new trolley. Suitable for oranges, olives, figs or grapes. $200 per acre. The Phalanx Company, 516 Chamber of Commerce, Los Angeles, Calif. A-5820, Main 1760.

40, 80 AND 160 ACRES at $40 per acre, in Los Angeles County; rich soil, level, artesian water, near R. R.; A-1 alfalfa, dairy, fruit and grain land; 10 per cent cash, balance 10 years at 6 per cent. R. F. Wells, 1174 Phelan Bldg., San Francisco.

SANTA CLARA VALLEY—Near Palo Alto and Stanford University; 20 acres garden soil, 3 acres pears; house, barn, pumping plant, also artesian well; $8000, one-half cash. A. C. Hobart, Palo Alto, Cal.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information address A. J. Smith, Groveland, Tuolumne County, California.

BARGAIN, 140 ACRES, $980—Rolling and hill land, Calaveras County; million feet timber, ditch, springs; raise cattle, sheep or goats; adjoining open range. Milton Rutherford, 2627 Fulton St., Berkeley, Cal.

BUY, SELL OR TRADE farms, city property and merchandise stocks. Give full particulars and tell me what you have and what you want. D. J. Forbes, 153½ Grand Ave., Portland, Ore.

WILL SELL 10-acre apple tract in Modoc county, Cal. Just coming into bearing; gathered 10 boxes this year, fine apples. Address J. Valier, Box 193, Wilmington, Cal. Phone 2432.

CITY OWNER MUST SELL unimproved 20 acres, perfectly located fig, olive, orange land. Right soil, water near surface. Address "Clovis," Orchard and Farm, Los Angeles, Cal.

120 ACRES, heavily timbered, unimproved hill land, Sonoma County, 5 miles town; good soil, abundant rainfall. Timber will pay for land; $1000 cash. F. Bond, Cloverdale, Cal.

PRETTY 6-ROOM MODERN BUNGALOW, 1 ACRE choice bearing fruit trees, grapes, chicken house, etc. Value $3000; sell cheap, or part trade for poultry, livestock. Box 619, Inglewood, Cal.

FOR SALE—Three acres, modern five-room bungalow, family orchard, near Los Gatos, on car line and highway; terms reasonable. MRS. F. A. MADDOX, Los Gatos, Cal.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

FOR SALE, AT A BARGAIN—6000 acres grazing land near Newman, Stanislaus County. Will sell all or part. Address Box 805, Orchard and Farm.

$5000—20-acre, 5-year-old orchard, with buildings, horse, cow, chickens, pumping plant. Theodor Muller, Route 2, Galt, Cal.

FREE LIST IMPROVED RANCHES, near San Francisco. Paul Rossier, owner, 613 Market st., San Francisco.

REAL ESTATE

EIGHT-ACRE SANVINA RANCH for sale, near Sebastopol, one-eighth of a mile from Petaluma and Santa Rosa electric R. R. shipping station; 4 acres in full bearing blackberries, 3 acres loganberries, 300 full bearing assorted fruit trees, 5-room house, good water, barn, 6 chicken houses, chickens, cow, 2 horses, 2 wagons; all in good condition; very reasonable. For particulars write owner, F. J. Bolla, Sebastopol, R. 3, Box 149.

RETIRING—Will sell thirty-six hundred acres, Tehama county, twenty-five dollars an acre; twenty thousand dollars first payment, balance easy terms; fine proposition; good soil and climate; well watered, well fenced; suitable for sheep, cattle, hogs or combination stock, grain, fruit and alfalfa; located twenty miles west of Red Bluff in prosperous community. H. E. Wolcott, Red Bluff, Cal.

FARM LANDS, HOMESTEADS

A PROSPEROUS FUTURE is ahead of the alfalfa raiser and now is the time to farm, for alfalfa in the field, $25, promises to reach a record price this year and to enjoy record prices for a long period. Our district is consistently alfalfa land, the greater part is covered with green irrigated fields, which produce as high as nine crops of hay. I have on hand a number of splendid alfalfa propositions, of moderate size, located in the silt artesian section of Madera County, the best part of the San Joaquin Valley, near towns, schools, S. P. and State highway. Richest silt loam soil, splendid and unlimited water, finest climate, makes profitable raising of many crops and fruits possible. My places are either fully improved, with buildings, pumping plants, growing crops, etc.; partly developed, leveled, ready for crop; or high class acreage, now in grain, ready for development. I will take as part payment on them other moderate sized pieces of property, preferably clear, and make terms on the balance that will be safe and sure. I deal direct and not as agent and will work in with your requirements if you state them. Arthur Vernon, Fresno, California.

431,000 ACRES—Fresno, Kern, Tulare, Inyo County sectional maps, $2.50 each, showing Sequoia National Forest openings. Good grass, timber and meadow land. Joseph Clark, Sacramento.

FARMS FOR SALE

FOR SALE—120 acres Shasta County foothill land, all fenced; 30 acres under cultivation; balance wooded pasture; 5-room house; barn 24x46; wood enough on the land to pay for the place. Price $1800; $1000 down, balance on time. Come and see for yourself. John Gander, Bella Vista, Cal.

FARMS FOR RENT.

WANTED—RENTERS FOR IRRIGATED LANDS in Southern Idaho. Cutting 3000 tons alfalfa, clover and wild hay; also grains and root crops, with ready market for all. Railroad ten to fifteen miles. Only first-class tenants considered. Give references. Address Box R, Bridge, Idaho.

FARMS WANTED

AN Eastern client wants highly improved income ranch, one that will be sold at sacrifice, he wanting his cash to talk; $20,000 to $30,000. Napa, Sonoma or Santa Clara county preferred.
C. G. FOWLER,
114 Russ Bldg. 235 Montgomery St., San Francisco, Cal.

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

WANTED—To hear from owner of good ranch for sale. State price, full particulars. D. F. Bush, Minneapolis, Minn.

REAL ESTATE FOR EXCHANGE

WILL EXCHANGE 40 acres or 80 acres or all of 120 acres; twenty miles of Portland, Oregon, for California acreage; will assume mortgage. Box 714, 520 Call Bldg., San Francisco.

WE EXCHANGE Real Estate—Johnson & Temple, San Jose, Cal.

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ANY AMOUNT ON COUNTRY PROPERTY. Bank rates. Write for particulars. We specialize on large country loans.
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FIELD SEEDS, GARDEN STOCK

GIANT "MARROW" CABBAGE'S official yield was eighty edible tons per acre. Much hardier, richer than kale; its stalk (trunk)—unlike kale's, being richest part—entirely edible; its "marrow," best egg, rabbit and butter-making "greens" known. (See full description in December issue.) Only stock of this guaranteed, pedigreed seeds (limited). Some plants ten feet high; 500 such seeds, 25c; five packets, $1; twelve (acre supply), $2. Other garden rarities. Photos, suggestions, samples, for return postage. E. E. Martin, Guaranteeing Seedsman, B-4, Bangor, Washington. (Will exchange by parcel post for clean walnuts, almonds, olives, figs, dates, raisins, dried apricots, peaches, pears, prunes, honey.)

NORTHERN FROST-RESISTING BEANS—Plant much earlier. "EARLIRIPE STRINGLESS BUSH WAX"—perfect for canning; richest flavored as "Dry;" white, purple eye. "FAVA," cream colored, gigantic; plant single seeds between potato hills, in row; vigorous bush. "SCARLET RUNNERS," half-grown pods afford EARLIEST "STRINGS." Packets, 10c; all three, 25c, postpaid. Dozen other rare, PRACTICAL varieties. Samples for postage. E. E. Martin, Guaranteeing Seedsman, B-4, Bangor, Washington.

ALFALFA PLANTERS, get this booklet, "Important Facts About Alfalfa Seed; the Prospective Alfalfa Growers Should Know." Read it before purchasing your alfalfa seed. It will save you money and insure you better seed. We handle all varieties of alfalfa seed and can supply you with seed best suited to your conditions. Write today for free booklet, samples and prices, describing your soil and moisture conditions. Bomberger Seed Co., Desk F, Modesto, Cal.

"PURPLE PERFECTION" POTATO—Salad-specialty; solid purple skin, white fleshed, super-early, resists culinary frosts; demands CONTINUOUS GROWTH, assuring two prolific crops in mild climates; avoids "keeping-over" worries. Sample 10c, pound 35c, three pounds 90c. E. E. Martin, Guaranteeing Seedsman, B—4, Bangor, Wash.

ALFALFA SEED—We have been growing and distributing this seed for forty years. We make it a specialty, both retail and wholesale. Tell us the nature of your soil and we will do the rest. Write for samples, prices, etc. V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal. Make our seed your seed.

HEADQUARTERS FOR ALFALFA and Sudan Grass Seed. Our field seeds are cleaned to the highest standard of purity. When buying from us you are not paying for chaff or weed seeds. Write for prices and samples. Valley Seed Company, 503-510 J Street, Sacramento, Cal.

LEGUME BACTERIA for alfalfa and all clovers. Don't risk failure by neglecting to inoculate. Price, $1.25 per bottle, postpaid (enough for 60 to 100 pounds of seed); prepared by a reputable eastern laboratory. Ralph Waldo Elden, Central Point, Ore.

ALFALFA SEED—New crop; home-grown; guaranteed clean. Sample and prices on application. Freight prepaid to your nearest railway station. A. F. Scheidecker, Zamora, Yolo County, Cal.

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FOR SALE—Direct from producer, new crop alfalfa seed; test shows this seed free from dodder. Address A. V. Cain, R. F. D. 1, Arbuckle, Cal.

STRICTLY FANCY SEEDS—Alfalfa, all Clovers and Grasses. Free Sweet Clover bulletins. Ralph Waldo Elden, Central Point, Ore.

GREATEST MONEY-MAKERS—Hardy Hybrid Alfalfa, gets thicker, spreads with age. Everlasting cropper. Tester. J. L. Lawson, San Jose, Cal.

NEW HYBRIDIZED POTATOES—50 varieties seed, only 15 cents packet. Order immediately. J. L. Lawson, San Jose, Cal.

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"GOLDEN POTLACH" OR "FULL DINNER" (Bush) Pea; "beefsteak substitute," many claim; largest, tenderest, greenest, sweetest. Ripe peas, soaked, properly prepared, equal "canned" product for table. Prolific, hardy. Only guaranteed Coast supply (limited). Packets only 10c; dozen, $1. Earliest ripening beans. E. E. Martin, Guaranteeing Seedsman, B-4, Bangor, Wash.

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FREE MAIL CATALOGUE—Blue flannel middy blouses, $3; U. S. Navy flannel blouses, $5; genuine army shoes, $4.50; send for our illustrated catalogues of suits, army canteens, khaki suits, campaign hats, cowboy hats, money belts, cartridge belts, tents and hammocks. Liebold & Co., 217 Market St., San Francisco.

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$1000 per acre growing the ALTON IMPROVED RED RASPBERRY; pamphlet free. Increase the yield of all your crops from 25 to 40 per cent; grow from 200 to 500 bushels of potatoes, 300 to 600 bushels of onions, 20 to 50 bushels of wheat per acre; all other crops in proportion. My free booklet tells you how. H. A. Pinegar, Wellington, Utah.

BERRY PLANTS at wholesale prices; blackberries, raspberries, loganberries, dewberries, strawberries, gooseberries, currants, grapes, rhubarb and asparagus. Write for price list. Rosecroft Nursery and Fruit Farms, Sumner, Wash.

100,000 SOUR ORANGE SEED, bed trees, 50,000 sweet. Choice new stock; trees lined out next spring, sore to hit a high market. Better plant at least a few thousand. East Colorado st. and Berkeley ave., Pasadena, Cal. Southland Nurseries.

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BEST CITRUS TREES grown from the best buds, from the best bearing trees in the famous East Whittier district. Thousands for 1918 planting. R. R. Morris, R. F. D. 1, Whittier, Cal.

PLANT RHUBARB NOW—12 plants furnish all sauce and pies for big family free; 8 plants, $1; one acre has produced $1100 first year. A. M. Jones, 1258 Cahuenga street, Hollywood, Calif.

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FOR SALE—FRENCH MAYETTE and Payne walnut grafting scions, 5c foot. Bowman-Kuhn Ranch, San Jose, Cal.

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STRAWBERRY PLANTS — Everbearing, strong, northern grown. Americus, $1.50 per 100; $3 per 250. F. L. Moffett, Ellensburg, Wash.

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MR. RANCHER: If you can use extra man in the near future, I would like to hear from you. I am a married man, 35 years of age, with little experience in farm work. Expect to purchase land in the next couple years, so wish to gain experience. I am not afraid of work and think I will prove a very apt scholar. Good surroundings and practical experience more essential than wages. Address J. E. Johnson, 6123 Hillsgass Ave., Oakland, Cal.

PERMANENT POSITION WANTED ON farm; can drive truck, touring car or horses; handle bees and poultry; can do machinist and blacksmith work; understand gas and steam engines; shoes draft; single, sober and reliable; gave up shop work on account of eye trouble. 54 San Luis ave., San Francisco.

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FREE 48 page catalog now ready describing in detail "Pioneer" Incubators, used by 48 Western Hatcheries. Let us send you a list of users. The prices are low. It's guaranteed to be the highest class hot water incubator manufactured in America. We ship on approval. Pioneer Hatchery, 3[illegible] S Spring st., Los Angeles.

FARMERS' CLASSIFIED MARKET PLACE—Continued on Next Page

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Big Profit Now Raising Our 200-290 Egg Utility

Or Prize Leghorns, Wyandottes, Minorcas, Rocks, Reds, Anconas, Orpingtons, Brahmas, Ducks, Thousands of chicks, eggs weekly, reduced price February. Laying pullets, hens. Males, half price. Many repeat orders year after year. Hundreds of customers making money. One clearsd $305 on 48 hens, another $617 on 110 last year.

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Hoganized Stock, White Leghorns, Anconas and White Rocks.

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R. I. RED BABY CHIX,
My Specialty.
Hsavy layers mated to produce heavy layers. Ssveral breeds. Order in advance.
Denton Poultry Yards,
Campbell,
California.

BABY CHICKS—All good, strong youngsters. Hatches every week, White, Brown and Buff Leghorns, R. I. Reds, Barred Rocks, Black Minorcas, Anconas. Also hatching eggs. Write for circular. J. H. Stubbe, Campbell Poultry Ranch, Campbell, Cslif.

FREE BABY CHICKS CATALOG, 66 pages, described in detail BABY CHICKS, hatching eggs, incubators, brooders, and supplies. We hatch 19 varieties of stock. Our prices are low. Write us today. World's LARGEST BABY CHICK DEALERS. Pioneer Hatchery, 320 S. Spring, Los Angeles, Calif.

WHITE ROCK COCKERELS, $3 each; chix from thoroughbred White Leghorns; White Rocks also; a cross between these breeds for winter laysrs and early broilers. "Quackless" White Muscovy ducklings. White Star Hatchery, Kermnn, Cal.

HATCHING EGGS AND CHICKS—Bred for 16 years for heavy laying and standard requirements. Trapnested nnd Hoganized—McFarlane strain. Eggs, $1.50 per setting; $6 per 100; chicks, $12 per 100. A. Worel, R. D 3, Napa, Cal.

BE WISE AND BUY CHICKS and be prepared for the shortage that is coming in poultry East Side Poultry Yards has the best layers on the market; White Leghorns, Coms and see. Prices will suit. E. J. Look, 255 South 18th St., San Jose, Cal.

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HUDSON'S WHITE LEGHORNS averaged 202 eggs in Oregon Agricultural College contest. We use trapnests. Fifteen eggs, $2. Circular. Hudson Ranch, Escondido, Cal.

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TRAPNESTED White and Buff Leghorns; great winners and layers. Eggs, chicks [illegible]k Arthur H. Schroeder, Mayfield, Cal.

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POULTRY.

BABY CHICKS

Anconas, $14 per 100; Barred Rocks, $15; Black Minorcas, $16; Brown Leghorns, $12; Buff Leghorns, $14; R. I. Rsds, $14; White Minorcas, $19; Buff Orpingtons, $19; White Orpingtons No. 1, $30; No. 2, $19; White Rocks, $19; White Wyandottes, $19; Quality White Leghorns, $12; Utility White Leghorns, $10. Order direct from these prices.

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BABY CHIX AND HATCHING EGGS from our own large, vigorous stock., carefully Hoganizsd and bred for heavy egg production. Barred Rocks, R. I. Reds, Anconas, 14c; Leghorns, 12c. Eggs, $1.50 for 15; $6 for 100. Downey Hatchery, Downey, Cal.

BABY CHICKS—Leading varieties. We guarantee safs arrival and full count; strong, vigorous chicks from the finest flocks of free range stock in this country. 1918 Price List and instructions on care of baby chicks, if you mention this paper. Laaher's Hatchery, Petaluma, Cal.

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BEST BREED FOR THE FARM—The Plymouth Rock. For information on superior market, egg-laying and prize-winning qualities and list of breeders, write The Northern California Plymouth Rock Club, O. B. Hunt, Secretary, 1244 Burnett St., Berkeley, Cal.

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HATCHING EGGS—S. C. White Leghorns "Bred-to-Lay"—Hoganized birds from Pine Tree strain; fertility guaranteed. Eight years established and still growing. Address Pine Tree Farm "A," Los Gatos, Cal.

CHICKEN RAISERS—I will tell you how to keep all insects away and raise every chick hatched at one-half usual cost. Instructions, $1. Address M. Boynton, 921 South Olive St., Los Angeles.

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10,000 RHODE ISLAND RED CHICKS every 21 days, $12.50 per 100, $60 per 600. Extra choice stock. Send me your order now. A. G. Rowe, Inglewood, Calif.

WHITE LEGHORN EGGS from trapnested stock, $1.50 per 15; $3.60 per 50; $6 per 100. Baby chicks. H. Tarratt, Corning, Cal.

BLUE ANDALUSIAN, Blue Orpington and Sheppard's Ancona eggs. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

CHIX—Buff, Brown and White Leghorns (Barron Strain), Anconas, Minorcas, Barred Rocks, Reds, Orpingtons and Silver Campines. Enoch Crews, Seabright, Cal.

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"EASTMAN'S Bred-to-Lay" Hoganized, trapnested Barred Plymouth Rocks. APRIL CHICKS. Eggs. Fairmsad Poultry Farm, Fairmead, Cal.

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Vodden's Rockery,
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QUALITY BRED CHICKS—Thoroughbred S. C. White Leghorns bred to lay; not simply chicks, hut stock that lays and pays. 1 hatch from my own yards exclusively—$500 to anyone that can prove otherwise. My ideal stone hatchery enables me to hatch perfect chicks during extreme temperatures; and all my chicks are shipped in the Dobbel Safety Boxes, which insure proper ventiiation and safe delivery. Quality and satisfaction guaranteed. Send for my folder. F. W. Dobbel, Buena Vista Poultry Yards, Box 173-O, Sonoma, Cal.

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CHICKS and hatching eggs from selected Hoganized stock. Whits and Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas. S. Martina, R. 2, Box 627, Santa Cruz, Cal.

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FAMOUS TOM BARRON White Leghorn eggs, $2 a setting. E. F. Barclay, Lindsay, Cal.

IF YOU WANT EGGS, get Andalusians. Hatching eggs for sale. Dan M. Calbreath, Monmouth, Ore.

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All popular varieties.

Our chicks sre supplied by experienced batchers and relisble breeders. A dependable supply of the very best. We ship everywhere.

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WE CAN FURNISH YOU with White Leghorn chicks from guaranteed heavy laying stock at very reasonable prices. Big money raising chickens and eggs. White Leghorns make broilers in ten weeks; pullets lay at five months. We guarantee safe delivery of all chicks to destination. Shipped safely anywhere west of the Rockies. No money in advance; pay on delivery. Special prices on 500 and 1000 lots. Finest hatchery in the world. Established over twenty years. For further information write Must Hatch Incubator Co., 405 Seventh St., Petaluma, Cal.

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GOLD NUGGET STRAIN GIANT BRONZE TURKEYS again prove their superiority by winning at three great shows, California State Fair, 1917; Texas State Fair, 1917; Los Angeles, January, 1918, Gold Special Sweepstskes at all three shows. Each judge pronounced them the best in the show, all breeds competing.

Remember, it was the Gold Nugget Strain that won at America's Greatest Turksy Show, World's Fair, San Francisco, three prizes on four entries.

Large turkeys can be raised at practically the same cost as small ones. My Toms will give you an increased weight of five pounds the first year. Either stock or eggs will givs you vitality, size and beauty. Address all communications to J. Will Blackman, 607 East Third St., Los Angeles, Cal.

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FOR SALE—Registered Percheron Stallion, Eckolan, 120501, sired by Hola; dam is Eclaretta, 100595. This stallion is a splendid individual, a proven sire, and a great bargain. He was born May 6, 1914, and has only been used on a few mares. Write us for a price on him. Bonita Stock Farm, Sacramento Bank Building, Sacramento, California.

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How to Grow Strawberries

A Most Profitable Variety

By George C. Roeding

of Fresno, Cal.

STRAWBERRIES bear almost the entire year in several of the coast counties, and the same may be said of the plants in the interior valleys, where they are properly mulched and irrigated.

In laying off ground for strawberries, the first essential point is to grade the plot so it has a gradual fall, so that no part of the rows will become submerged in irrigating.

There are a number of methods for laying out strawberry beds, but the one mostly followed by commercial growers is to plant in rows, hilled up and about two feet apart, with a ditch between for irrigating. Set the plants eighteen inches apart in the rows.

It is very important during the fruiting season to keep the plants in an active state of growth by irrigating, weeding and cultivating. In order to obtain large, highly flavored fruit, pinch off the runners as fast as they appear, and this will cause the plants to stock out, as it were, on which the very finest strawberries may be expected the following season.

It is advisable to divide the bed into checks or divisions, not to exceed 100 feet, and have the same almost on a dead level. This is very important, for when irrigating the water stands on the same level throughout the row and prevents damage to the berries and plants alike.

The berry most desired by the grower is one medium to large in size, which bears abundantly and ships well. Such is the Banner, being also a full rich strawberry red all over, of excellent quality and is therefore not a disappointment to the consumer. The vines are of a most vigorous habit, as may be observed by referring to the illustration.

From the patch there shown truck loads of fine berries were sent each day to the markets in San Francisco, where they regularly brought about 20 per cent more than was paid for any other berry. As usual, in such cases some growers are attempting to place on the market other varieties calling them "Sunnyvale Banner berries."

The berry has a distinct color and its bearing qualities are all that could be desired.

Save Orchard and Farm's Best Articles

ORCHARD AND FARM suggests that its readers who see some particularly interesting articles in its columns should clip them out and file them away.

Articles of intense interest relative to successful experiments in all lines of husbandry appear in this publication. For purposes of ready reference, some of our readers clip these articles out, and in the course of time have amassed under the various subdivisions a vast fund of information of the utmost value.

If they trust to memory, they forget the issue in which the article appeared and to find it have to search through many copies.

A Basketful of Nubbins

SOMETIMES the family nag has a stall in the house.

The grim reaper usually harvests the wild oats crop first.

Some families keep a cow, and some cows keep a family.

Unless a man profit by his mistakes it seems foolish for him to make them.

There is no accounting for tastes. In nearly every family there is someone who likes the gizzard.

Man is generally a steadfast back-to-nature enthusiast until he has bent his back to nature for a few seasons.

The extra milk that a dairyman gets by treating his cows with gentleness and consideration is the milk of human kindness.

Days when help is scarce and you can't hire a harvest hand for love nor money, you can always engage a public speaker.

Aunt Maria used to say that the only way she could reconcile herself to the prospect of having relatives visit her was by keeping in mind the fact that the women folks would wipe the dishes for her.—H. C. K.

It takes the fuss out of breakfast

THANKS to Ghirardelli's—breakfast-making is not the job it used to be. There's no fuss—no muss—no time lost.

If a chocolate pot does not happen to be handy—you use an ordinary stew-pan. It takes but a minute or two. And then—you have the most delicious of all food-beverages steaming hot, ready to serve.

An ideal blend of ideal foods—cocoa and pure sugar—Ghirardelli's supplies the maximum nutriment at minimum cost. Always keep a can on hand.

In ½ lb., 1 lb. and 3 lb. cans; a tablespoonful—one cent's worth—makes a cup.

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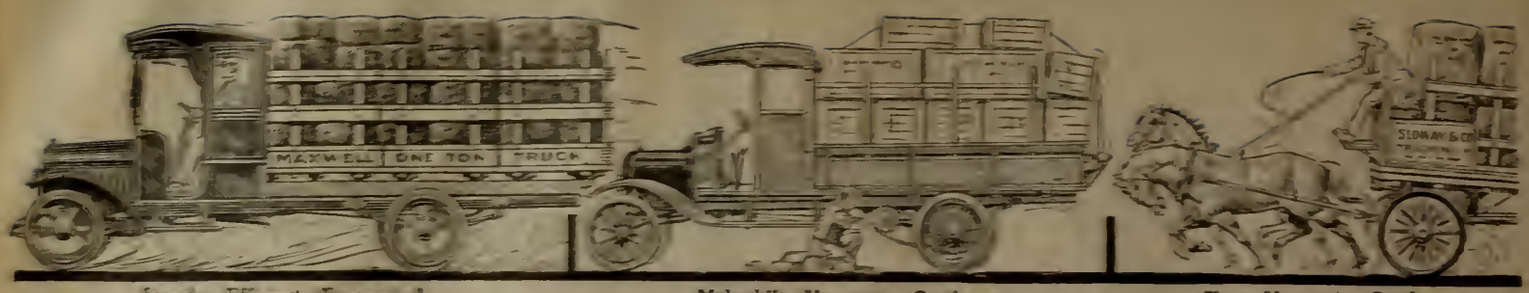

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As a business farmer, you must have a truck. Don't postpone decision longer. Buy now while you still can get one. Don't wait until only the money-wasting makeshifts are left.

Be just as coldblooded as a traffic expert is in selecting the right truck. Base your choice on the same considerations as he does and you will be right.

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The new and coming conditions are changing the whole of the transportation experts' judgment as to what truck is most economical in operating costs as well as in first costs.

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One-Ton Chassis, $925; Chassis with Cab and Windshield, $1025; Combination Box Body, $1035; Combination Box Stake Body with Cab and Windshield, $1075; Stake Gate Body with Cab and Windshield, $1080; Express Canopy Body, $1095. F. O. B. Detroit

Send Today for Catalog B

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Detroit, Michigan — San Francisco, California

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MOST MILES PER GALLON - MOST MILES ON TIRES

April, 1918 *Planting Pinto Beans in California* 5c Per Copy

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An Easter Child

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WE ARE NOT THINKING of the price—for that isn't the primary consideration in the selection of a car.

YOU KNOW YOUR OWN NEEDS—whether a five passenger car is sufficient, or if you really need, at times, room for more.

AND YOU KNOW better than anyone else can tell you, what your price limit is.

AND SURELY AT ITS PRICE this Reo Six is the greatest value obtainable in a car of established reputation.

AND REO REPUTATION is second to none.

WHEN WE SAY "Here is a seven-passenger Six that you can afford," we are thinking of the same item that you, an experienced motorist, are considering—

NAMELY—UPKEEP. That is the first thing to consider in the selection of an automobile.

CERTAINLY YOU CAN afford to own a seven-passenger car—if you can feel that not only in first cost but also in cost of upkeep it will be well within your means and accord with your ideas.

ASK ANY REO SIX OWNER to tell you of the upkeep cost of his Six—and the longer he has owned and the farther he has driven his Reo, the better will his answer sound.

AND HE'LL TELL YOU, too, that he has yet to find even a five-passenger car—four or six—the operation, repairs, replacements and general upkeep cost of which proved as low as his Reo Six—except one the five-passenger Reo.

NATURALLY a five passenger car ought to be cheaper to maintain than one of seven-passenger capacity—but most are not, when you look up the figures.

REO DEALERS TELL US that their records for the past three years show that Reo Six owners on the average have paid less than eight dollars per car per year for replacement parts.

JUST READ THAT AGAIN—with thousands of Reo Sixes running in all parts of the country, over all kinds of roads and handled by all kinds of skilled and unskilled drivers; most of them owner driven and owner cared for (or neglected)—

THE AVERAGE COST per car, per year, for replacement parts was less than eight dollars!

FRANKLY WE DON'T believe that record can be equalled by any other seven-passenger car on earth.

AND WE MAY ADD that the records on the five-passenger Reo show less than seven dollars per car.

THE SAME QUALITY—the same sound engineering; the same ripe experience; the same attention to little details and the same construction, inspection and testing of every car enter into the making of all Reo models.

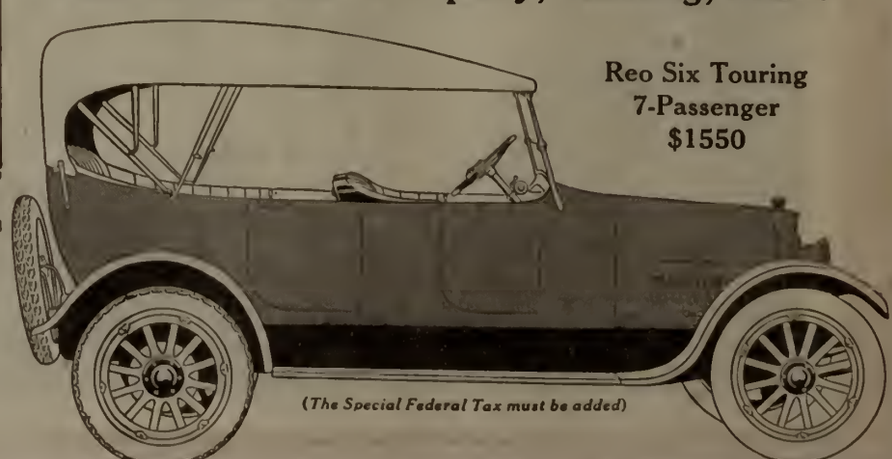
COST OF UPKEEP is always uppermost in the minds of Reo engineers, when designing and when specifying materials. And since the same desire is uppermost in the minds of the most experienced buyers—we meet on a common ground.

WE ARE FRANK TO ADMIT that to a large extent the phenomenally low cost of upkeep of Reos is due to the fact that Reo buyers are, as a class, better informed and more careful in their selection than the average.

IF YOU ARE ONE of that kind, we say to you, here is a magnificent, luxurious, seven-passenger six that, both in first cost and cost of upkeep, you can well afford to own.

REO EFFICIENCY sets the price lower—Reo quality guarantees low upkeep.

Reo Motor Car Company, Lansing, Mich.



Reo Six Touring 7-Passenger $1550

(The Special Federal Tax must be added)

ORCHARD and FARM

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Success with Pinto Beans

California Is Emulating New Mexico

PINTO beans, a howling success in New Mexico, would be equally successful here if they were planted in a large way.

For the first time Pinto beans were offered by local seedsmen to the bean growers of Southern California last season. Aggeler & Musser report that one of their clients, E. L. Journigan, grew 24 sacks to the acre in 65 days. A pretty sudden and successful performance, truly. Everybody in Mr. Journigan's neighborhood has been getting excited over Pinto beans, and it looks as though they were a pretty good thing to get excited over.

The Pinto is the bean that made New Mexico famous and added millions to the wealth of that State. The 1917 crop in New Mexico is estimated at 50,000,000 pounds, or 1000 carloads. The crop was valued at $4,000,000 and $90 to the acre was the average, while in some localities it far exceeded that figure.

They Do Well in California

Though it has not been grown in California in a commercial way to any extent, experiments show that it is well adapted to the higher altitudes of this State in places where there is about 14 inches of rainfall during a season.

Three years ago Colorado took up the "New Mexican bean fad," as it was called, and planted thousands of acres of Pinto beans. They have added greatly to the agricultural wealth of the centennial State and are now quite generally grown. It is estimated that the Pinto increased the bean production of Colorado over 200 per cent last year as compared with 1916.

What New Mexico and Colorado have done with the Pinto bean can also be done by California.

A Dry Land Product

The Pinto bean is a dry land product, so-called, that is it grows with the minimum of moisture. It could be grown to advantage on some of the brushy hillsides of California, where the land is of little or no value for any other kind of crop. No irrigation is required, and if the total rainfall should not exceed 10 inches, the Pinto would probably weather it out and yield a good crop.

If Mr. Journigan grew nearly 2000 pounds to the acre in 65 days there does not seem to be any reason why a good second crop might not be grown, on land where a little irrigation is possible, and there are those who say such a second crop can be grown without irrigation.

The Pinto grows a bush like the pink bean. For an inland crop it is preferable to the tepary because of a larger yield per acre and finds a ready market.

The Colorado experiment station reports:

"In food value the Pinto practically is identical with the navy bean, but being more tender in flesh, it cooks more easily. In the total calories of fuel value per pound the Pinto exceeds other beans, having 1695 units, compared to 1525 for the lima, and 1605 for the navy."

Colored beans are not preferred in the East, but nearly everybody in the West likes them. If California were to plant a goodly acreage of Pintos this season there would no doubt be a big general planting next year. That has been the history of the Pinto wherever it has been introduced.

Uncle Sam Backs Up the Pinto

The acreage devoted to this crop has increased rapidly in the Southwest in the last few years, and the war has given it the greatest impetus. New Mexico, long known as the home of the Pinto, harvested 300,000 acres in 1917. This was an increase of more than 100 per cent over the 1916 acreage. Colorado more than doubled its acreage last year, jumping from 35,000 to 175,000. There also was an increased acreage in Kansas.

The United States Food Administration has put its O. K. on the Pinto bean and given it an official boost which doubtless will result in a demand for this excellent article of food in sections where heretofore it has not been used.

How Alfalfa Is Irrigated

In the Imperial and San Joaquin Valleys.

SAMUEL FORTIER, chief of the Federal irrigation investigations, has issued a revised report in which he tells of the results of his studies of the watering of alfalfa in the Imperial and San Joaquin valleys. According to Mr. Fortier, in the Imperial Valley a 40-acre tract is divided in 22 lands, each 60 feet wide and 0.25 mile long for the check system of irrigation. In order to lessen the first cost, the material for the levees, instead of being scraped from the high portions of the lands, is taken from the sides of these levees. This creates hollows in which water may collect, thus lessening the amount received by the rest of the land, makes the mowing and raking more difficult, and frequently lessens the yield. Such levees may be made by the use of the plow and ridger. In this method a narrow strip is first plowed and then the ridger, drawn by a number of horses, forms the loose earth into a ridge.

The cost per acre for preparing the land by the border method in the Imperial Valley varies all the way from $5 to $20, depending on the character of the native vegetation and the size and number of the hummocks. When creosote bushes and mesquite trees are surrounded by winddriven sands, the cost may run as high as $40 to $60 per acre.

Quantity of Water Used

In the Imperial valley the size of the head used varies from 50 to 600 miner's inches, but the present tendency is toward the use of the smaller heads. In using a head of 500 inches it is customary to divide it among five lands.

With such a head it is not unusual for two men working 12-hour shifts to irrigate 80 acres in 24 hours.

On a farm east of Modesto, Cal., the owner plows the land in the early spring to a depth of 6 inches with a four-gang plow. During the summer the checks and ditches are built in a rough way, no effort being made to level the floor of the checks or to smooth the levees and ditch banks. Then it is irrigated heavily, and after the soil is sufficiently dry the floor of each check is leveled carefully and the levees trimmed and smoothed. For the latter purpose a special grader is used. One passage of this grader across the top of each levee and once along each side reduces the levee to a base of 14 feet, and a height of 8 inches on the high side and 10 inches on the low side.

West San Joaquin Methods

On the west side of the San Joaquin Valley the land to be seeded to alfalfa is almost invariably formed into contour checks. Few permanent wooden check boxes are used. The water is checked up by dams of coarse manure, and an opening is made in the levee bank with a shovel to admit the water.

The lack of suitable boxes to control the water passing from the feed ditch into each check and the use of smaller heads greatly increases the cost of irrigating over that of the Modesto and Turlock districts. In the latter the cost for the season was estimated at 60 cents per acre, while in the former the estimate is 90 cents for each watering.

The chief advantage of the check method is that one man can attend to a large volume of water and can irrigate 7 to 15 acres in 10 hours, making the cost of applying water less than by any other method except the border method.

Disadvantages of Check Method

To counterbalance this important gain, there are several disadvantages which western farmers ought to consider. These are the removal of a considerable quantity of surface soil to form the levees, which frequently decreases the yield on the graded

(Continued on Page 33)

Main Central Canal, Near Mexican Boundary, Imperial Valley.

A Diverting Canal, Merced, County, Cal.

Blue Orpingtons

Pretty, Popular Hens.

OF all the breeds of poultry raised in the United States, the Blue Orpingtons are one of the most admired. "What a pretty blue bird!" This is the exclamation you hear on introducing them to strangers of the breed.

The demand for them is increasing daily. The reason for this demand is not far to seek, as the birds are the most attractive in coloring of all breeds. Many have been disappointed in the breeding of blue varieties in the past, owing to their birds not coming true to color and type. The results from Blue Orpingtons are entirely encouraging, because they breed very true to color, which is undoubtedly due to their being of a richer shade of blue than the other varieties of blue fowls. When first hatched, the breeder will think the chicks too dark, but when they moult their baby feathers at four months old and come out with their new gowns, they will be of the correct dark blue style, so much admired.

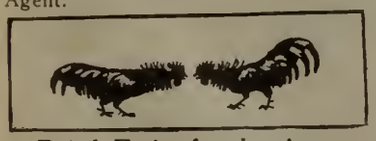
The Blue Orpingtons have not only the true Orpington type, but possess the most fascinating plumage, as the ground color of the birds is a rich blue, which in the hen and pullet is laced with a darker shade, and the breast of the male bird matches the females, while his hackles, saddle and tail are a rich shade of blue, and the birds of both sexes have a mass of the most beautiful soft feathers of the same shade as the ground color on the thighs.

They have dark eyes and dark blue legs, and we have never yet met anyone who did not express admiration when first seeing a pen of these birds.

Having kept a careful record of the laying results of my blues during the past year, it is possible to say that they equal any of the Orpington family as a laying strain.—J. R. Huddleston.

Government Poultry Experts

OUR government, wishing at all times to overcome all hardships to its citizens, is placing at your disposal a project of poultry profit. That you may receive information to aid your work and keep you advised as to modern methods of poultry culture it is, at the expense of $148,000, placing government poultry specialists in each of the agricultural colleges to instruct in the extension service of each state where important bulletins are placed for the convenience of poultry raisers. The expert is at your service for advice and consultation.—Arthur A. Peters, District Agent.



Dried Fruits for the Army

THERE is going to be a complete clean up of all the dried fruits on the coast before the government gets through with its orders for that commodity, so highly adapted to army uses.

The Santa Clara Valley dried fruit men have sold enormous quantities of their product to Uncle Sam and so have the growers of Fresno county and all the way down to the Mexican line wherever the fruit was offered for sale.

The biggest dried fruit order ever given to a Chico firm was that recently filled by the Reynolds Packing Company. The company shipped to the army authorities 8200 boxes of dried fruits, consisting of 4600 boxes of dried prunes and 3600 boxes of dried peaches. This completed an order for 200 tons of dried fruits that the company had packed since the first of the year and which was all consigned to the United States War Department.

Table Grape Profits

By J. W. Jeffery,

Of the California Board of Viticultural Commissioners.

FRESNO and Tulare counties during the viticultural season of 1917 were the centers of unusual activity in the marketing of table grapes and the production of raisins. Never before in the history of the table grape business in this State, perhaps, have such uniform and profitable crops been harvested or more progress made toward permanence and security in this branch of viticulture.

This advancement is primarily due to the enterprise of the growers and shippers. It is now reaping the reward of cumulative experience and the use of improved methods of cultivation, packing and distribution. The profits of the fresh fruit industry have been unusual in these favored districts, running as high in extreme cases as $1500 net per acre, and very often netting $700.

In one instance a dozen consecutive cars of grapes sold at an average of more than $2700, and these, with the high averages throughout most of the season, placed the past year far above all others in financial returns. Far-seeing growers and shippers do not expect these high prices for the coming years, but they have good reason to expect the business to remain profitable under the improved cultural and marketing conditions which are now prevailing. This record is in strong contrast with the experiences of 1916, and is referred to here to show how some of the mistakes and misfortunes of that year have been overcome through greater care in handling the crops aided by better weather conditions.

Favorable Elements

The producers and distributors of table grapes realize that an unusual number of favorable elements combined in 1917 to produce such remarkable returns, and that such a run of circumstances may not occur again for some time.

No previous season had been marked by such uniform and long continued fair weather for ripening and harvesting the fruit. Neither rain nor frost marred the crops or prevented the steady delivery of fruit to the end of the season. A serious car shortage, together with better distribution, kept the demand active and prevented the glutting of the markets. Eastern weather was generally favorable to a lively trade and the consumers were financially able to pay fair prices. These and favorable causes gave stability and composure to the business, and the use of better packing material aided materially in producing the splendid record of the season of 1917.

The market for drum-packed Emperor grapes had suffered alarmingly, caused by the poor keeping quality of the fruit in 1916, and to prevent its recurrence the shippers and horticultural officials early in 1917 set about to correct the mistakes and prevent the misfortunes that had so seriously impaired the business of the preceding year.

To this end, at the close of the late disastrous season the secretary of the State Board of Viticultural Commissioners began a wide correspondence with the table grape distributors in the East, inquiring especially about the quality of pack and the keeping character of fruit sent forward in sawdust. Before the close of the year the secretary had received more than 150 replies, from which he made a careful digest of information to be used in public meetings designed for the betterment of the Emperor pack throughout the districts of Fresno and Tulare counties. In a majority of these replies the fruit jobbers complained of the inferior keeping qualities of the grapes and a large number intimated that they would have nothing more to do with the sawdust pack from California.

Shipments Destroyed

Our board promised in this bulletin to hold meetings, issue warnings, investigate the condition of packing materials, make experiments in predrying and to notify the trade that great efforts would be made to improve the conditions complained of by the Eastern handlers of this fruit. This promise has been fulfilled concurrently with the investigational work laid out by the board for the vineyards of the San Joaquin Valley.

In pursuance of this plan many public meetings and committee conferences were held throughout the district early last year by the board, at which the fact was established that a large percentage of the Emperor crop of 1916 had been packed damp, or damaged by the rains before packing, and many growers claimed that the use of inferior sawdust had much to do with the season's losses. Therefore a thorough examination of the sawdust supplies was ordered as the supplies arrived.

The first receipts were wet and mouldy, running as high as 28 per cent moisture in one lot and averaging more than 20 per cent in one series of tests. One shipment of 5000 sacks and another of 3000 were destroyed by a shipper and many smaller lots were discarded. The publicity given to this matter aroused public sentiment, the press gave great assistance which with the vigilance of the packers removed all cause of complaint and at the beginning of the packing season last fall not a pound of inferior sawdust was to be found in the Emperor grape districts and to some effect the result of better material is found in the reports from the Eastern markets the past season.

New Drying Rooms

Arrangements were made at the Dinuba station last fall for the removal of surface moisture from the grapes before packing, the experiments to be made on carload lots to test the efficacy of this plan.

In the meantime a large grower of Emperor and Almeria fruit at Dinuba built a special plant for this work, equipped with furnaces, large electric blowers, circulating pipes and trackage especially designed to carry the grapes from the wagon through the drying rooms and to the packing table with one handling.

There are 16 drying rooms each operating separately and capable of treating many carloads per day. Both of these propositions failed of trial because of the total absence of rain or dew during the season, but these plants will be ready for use the coming season should weather conditions demand.

It was intended last fall to make heavy pickings immediately following rains and thus attempt to prevent incipient decay. Most important results are sure to follow these experiments when adverse weather again prevails and it is the purpose of the board to keep the growers and the trade advised as to the success of this plan.

Work at Dinuba

Our board will continue the work of the Dinuba station for some time on account of the continued interest of the grape growers and the evidence of substantial progress. A year of pathological study and practical soil work has shown that most of the vine troubles are due to soil irregularities and water supplies and the consequent low nutrition of the plants; that no specific diseases abound and that possibly all of the maladies may be controlled when practical experiments have demonstrated sufficient improvement in handling the land.

The board is convinced of the value of continued soil tests and observations and by the end of the present season will have collected much data to show that the use of certain soil correctives together with deeper cultivation and the more regular distribution of soil moisture will in large measure solve many of the difficulties. The effect of this practical work is already felt and the growers who one year ago believed that plant diseases were ravishing their vineyards are now devoting their energies to better tillage and more rational methods of fertilization.

New Tractor School

For Boys and Girls.

KEEN interest is being taken by high school boys and girls of San Fernando, Cal., in a tractor course for learning more about farm tractors.

Ever since the Riverside tractor course, students of various schools have made requests to their teachers with the hope of securing some knowledge regarding tractors and general engine principles.

The high school boys of San Fernando were so eager that they not only sought means through their teachers, farm advisers, business men and bankers, but took the matter up with local transfer concerns.

The International Harvester Company has been teaching tractor schools throughout Southern California and Arizona for the benefit of tractor owners, regardless of makes or types. Business men, bankers, educators, farm advisers, everybody, is invited to attend these schools and see the real benefits derived from not only knowing all about the mechanism of tractors, but to learn the real good derived and the saving involved by using tractors. The International Company, through its local branch manager, Mr. H. E. Daniels, has arranged to give the San Fernando high school boys and girls one whole week of practical instruction, beginning April 1st. Lectures will be given the boys and girls, with about twenty to a class, and from two to three periods each morning. The afternoon will be devoted to practice or field work with the tractors.

Several types of tractors will be on the grounds and the classes will be divided in groups. Each group will spend from 30 minutes to an hour with each tractor.

When it was found that the boys were so enthusiastic for this tractor course, Professor R. G. Millen took the matter up with the local farm adviser, Dan Clower, which resulted in Mr. Clower and Mr. Millen securing the services and co-operation of the Harvester Company.

After getting boys to register for the course, to determine how many would participate, great surprise was manifested when several young high school girls expressed their desire to learn all about tractors also. Several of the girls' fathers own tractors and have brothers who are subject to the draft. They want to take their brothers' places, and want to learn all about tractors and help to produce more food.

Well, What's New in Your Line, Mr. Rancher?

Are You Studying Up-to-Date Ideas, Systematic Farming

A Good Selling Plan

SEVERAL months ago Orchard and Farm suggested that it would be a good idea if the express companies would list the products of small farmers and send them to city people who wanted to buy fresh eatables of various kinds. This idea has taken root and some of the express companies are sending out to certain localities what they call a "Weekly Farm-to-Table Bulletin," which contains a list of country produce offered by farmers, with the price at which any article will be delivered to the consumer in ten-pound lots or over. These bulletins are sent by the express company to city folks who want to buy fresh country eatables direct from the farm—the company getting its profit from the extra express and money-order business thus resulting.

All the farmer has to do is to list his offerings with his local express company, and then fill the orders obtained by the company.

In one of these bulletins prepared for distributing in New York City, is found, in addition to offerings of butter, eggs, etc., this item:

"Direct from Seattle, Wash., a choice fresh salmon, cod, or chicken halibut weighing seven to nine pounds, dressed, carefully packed in ice, guaranteed by shippers to arrive in prime condition, must be paid for in advance, express prepaid, $2."

System With Tools

OFTEN a rancher who has a fine large set of tools is a mark for the whole neighborhood. Everybody borrows them, sometimes bringing them back after a long interval in which they are sadly missed by the owner, or not returning them at all.

A Visalia rancher has hit upon a plan that will not only remind borrowers of their obligations but will also remind his hired men and himself as well to replace every tool as soon as it has accomplished its immediate purpose. He painted one wall of his shed white and on this he hung all his smaller tools. Then he outlined each one with a pencil and blacked in the exact drawing of every implement. He then had some slips of paper hung on the wall and an anchored pencil alongside of it. A sign above the tool rack reads "If you remove one of these tools put down your name and date of removal on a slip and hang it on the nail you took the tool from.

Not only does this provide a record of tool usage, but there is a psychological effect upon the man who takes the tool when there is a picture in his mind, as there is bound to be, of that black empty space which represents the missing tool.

Wasting Manure by Piling

THE results of many tests show that it takes two tons of fresh manure to make one ton of rotted manure. They also show that a ton of rotted manure contains no more nitrogen and potash, and but one pound more of phosphorus, than a ton of fresh manure. The waste in allowing the manure to lie and rot in the pile is practically 50 per cent.

Light, frequent, even applications of manure are far more profitable than infrequent, heavy applications, according to experiment station tests. By spreading the manure as fresh as possible, the rotting process, or the chemical action, can take place on the soil and the soil receive all the benefit therefrom. By decomposition and in the soil, manure gives carbonic acid gas, which unites with the soil waters and increases its solvent action on mineral plant food. Pulverize the manure and spread it evenly and you will fertilize

Keep a Farm Inventory

MANY farmers keep no inventories of their property and would be unable to tell precisely what they had lost in case it was destroyed. An inventory is an itemized list of all property connected with the farm business, with its value. It will of course vary from year to year so it is necessary to take an inventory every year. The amount invested in different parts of the business will vary as stock and crops are being raised and sold at various times. An inventory is worth many times the effort it requires since it enables one to know the amount he has invested in livestock, buildings, machinery, feed, land, etc., year after year.

The time to take the inventory is largely a matter of choice but by all means it should be taken some time between January 1 and May 1. A tenant may want to take his at the time he is changing farms which is generally in early spring, so this would doubtless be as good a time as any, and work is usually slack now.

How to Save Baling Wire

THEY tell the story of an eastern farm hand who came to California and struck a farmer for a job. The farmer gave him a team, but when he started off to the field, yelled at him, "Say, don't you know anything about farming? Where are you going without taking some baling wire along?"

If this story is true, the California farmer makes more use of wire than the easterner, and it certainly comes in handy. Soon after the writer moved on a place last spring a neighbor called one evening and as he stumbled along in the dark, said "A man could tell he was in California by the way he runs into baling wire all over a place."

One thing is noticeable about the use of baling wire around here. As a rule it is thrown down near the stack and by the time it is used it is rusty, brittle and weak. By putting it under shelter, it would be strong, pliable and easily handled when needed.—D. J. Whitney, Exeter, Cal.

We Want New Farming Facts

ORCHARD AND FARM asks you to send in little stories of experiments you have made in farm work that proved of value to you, and also accounts of unsuccessful experiments that would be a guide for others.

We want Orchard and Farm to be a meeting place of the farmers of the Pacific Coast, where they can exchange experiences and profit by such exchange. Practical farmers everywhere are continually devising some new wrinkle as to cultivation, or irrigation, or fertilization, as well as schemes as to livestock raising. A practical farmer's ingenuity frequently results in the production of an idea of practice as valuable as that evolved by a professor of agriculture.

All of these communications will be saved. The best will be printed, and at the end of a year a committee will pass upon them. This committee will be from the California College of Agriculture, as follows:

John W. Gilmore, Division of Farm Management.
Gordon H. True, Division of Animal Husbandry.
C. L. Roadhouse, Dairy Industry Division.
J. E. Dougherty, Poultry Division.
W. L. Howard, Division of Pomology.
Frederic T. Bioletti, Division of Viticulture.
Frank Adams, Irrigation Division.
H. J. Webber, Director Citrus Experiment Station, Riverside, Cal.

The communication that is regarded by the committee as having proved of the most value will be awarded a prize of $50. The one second in value will receive a prize of $25. The third in value will receive a prize of $15. The fourth, $10, and the fifth in value, $5.

Write to Orchard and Farm as briefly and as clearly as possible, so that there can be no mistake as to your meaning about the original thing you have developed that you regard as having been of the greatest value to you and your farm.

Bull in Treadmill

A BULL is a very strong animal and may be made to do a lot of work, especially at the time when we want to conserve all our power. By using a treadmill, a bull can be made to run a washing machine, a separator or a wood saw, pump water for the house and stock, and numerous other things.

State Dairy Agent Burlow of Wyoming has compiled a table which shows the power a bull will develop on an eight-foot treadmill with one end two feet higher than the other and walking at the rate of two miles per hour.

Weight of Animal.	H. P.
800 pounds	1.07
1200 pounds	1.60
1600 pounds	2.13
2000 pounds	2.66

You will see by the above that an animal will generate more power than if used on a sweep, and without overworking him.

Barnyard Apartments

THERE is a man named Ross in Ripon, Cal., who has built what he calls barnyard apartments. These structures were suggested by the idea of the modern city apartment house. In one of these houses Ross has chickens, rabbits and pigeons. The structure is six feet long and six feet high. Up under the peaked roof are the pigeons. Under this is a section one and one-half feet high devoted to rabbits and below are the chickens.

This three-story affair conserves space and is economical to build. As most rabbit growers also keep chickens the two lines naturally fit into each other in these apartments, while the pigeons, though a negligible factor, may also be kept with little or no expense in the matter of building.

On a very small farm it is against space conservation to have outbuildings sprawl over the place. Mr. Ross' idea is practical on any little chicken ranch.

Make Tenants Use Fertilizer

ONE great objection to leasing land for farming purposes is that a tenant is likely to let the soil run down by not spreading sufficient fertilizer upon it. This has been the case with Japanese-tenanted land in San Joaquin and other counties of California.

Tenants, on the other hand, often declare that they cannot afford to fertilize soil when their term of occupancy is short. They see no reason why they should give the landlord so much more benefit than he is justly entitled to. An equitable procedure is to make the leases for longer terms and to give the tenant some return for his expense by the adoption having a clause in the lease something like this:

Party of the second part shall apply ground raw rock phosphate at the rate of ———— lbs. per acre (or acid phosphate) to approximately one-fifth of the cultivated land each year, each party bearing one-half the cost of material used. He shall also apply ground limestone (or other lime) to fields of acid soil that are or are to be seeded to alfalfa, the application to be made in such amounts as the condition of the soil may require, each party bearing one-half the cost of the material. For the purpose of this lease, it is estimated that the beneficial effects of the phosphate and lime will continue for five years, and the first party hereby agrees to reimburse second party one-fifth of his expense for purchased phosphate and lime for each year he has received no benefit owing to the termination of his occupancy of the farm.

Don't Let the Work Wear You

I WAS much interested in a little article in Orchard and Farm about a Riverside county orange grower whose ranch work had so gotten upon his nerves that he was prostrated by it. Health is such a good asset that I thought I would tell you how I keep mine. This orange grower of which you write lets his hired men bother him too much. He has not time to plan out his work, as his men are constantly running to him and reporting this and that thing to be done or asking questions, most of them of a trivial nature.

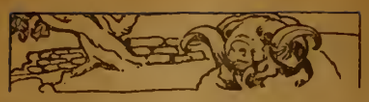
My plan is to grasp the essentials —keep them in view all the time and let the ranch, in a way, run itself. I believe that every successful business is conducted in this manner. My men are so trained that they don't bother me very much. I have taught them to think problems out for themselves and to see them through to a successful solution.

For at least two hours a day I sit in my little office on the ranch, with a sign on the door, "Glad to see you at two o'clock," or whatever the hour may be. In this way I have ample time to work out my schemes alone and with perfect equanimity, and nobody will run in on me and disturb me.—L. B. N., Anaheim, Cal.

Does Your Farm Gate Sag?

NOTHING is more bothersome than a sagging farm gate. A Western farmer, looking at a roller track barn door, thought the same plan might be applied to his outside gate. So he went to town and bought a barn door roller track and a long piece of iron for it to run upon. The gate is hung in a frame about 16 feet high, to allow of the passage of high loads. The frame is of heavy wood—angle iron would be better—and the posts are set in concrete to a depth of three feet. The total cost of the material was $12, and the gate, which is of 1½x6 redwood lumber, was hung in one day.

This rancher now has a gate that will not sag and through which it is a pleasure to pass, as it can be opened very easily.—R. D. Sanborn.



Let in the Sheep

By Ralph Davis,
Livestock Writer for Orchard and Farm.

THE sheep men of this coast want to let their animals in upon the lands of the national parks and national forest reserves.

Why not?

Many of them are permitted to do so already. Why not extend the number in these war times so that these public lands shall help to feed the public?

There is altogether too much sentiment about sheep grazing in the national parks. Dear Old John Muir started it. Muir was all right in his day. He was a great authority on glaciers and on botanical subjects, but he knew very little about sheep.

According to Muir sheep were the worst enemies of the forest lover. They chewed up the bright green grass and spoiled the beauty of the landscape. Well, sheep do eat grass, and sometimes brush, but they do not spoil the landscape. Even if they did, is it not true, as George Eliot said, that "Nature Repairs Her Ravages?"

In a single season all the destruction done by sheep to any one of the national forests will be repaired, and I verily believe that the landscape will look better than ever—a little trimmer, perhaps, but less devoid of underbrush—cleaner and neater all around.

War Time Pasturage

Secretary Houston says that the capacity of the national forests is already fully tested by the livestock owners. But all he has to do to know the truth about this matter is to go into any of these forests and look around a little. He will find when he figures it all up that there are less sheep now in those forests than ever before, though in these war times there should be more.

At the meeting of the livestock men to be held at Davis, Cal., on April 8th to 10th the matter of further utilizing the grass in the national parks of California will come up for consideration.

Last year there were 7,800,000 sheep and goats grazing in the national forests. There should have been over a million. This year there should be two millions.

The United States raised 1,200,000 less sheep in 1917 than in 1914. Less sheep in a year when we are at war than when we were at peace. Can you beat this for economical use of our grazing lands?

Must Not Sell Permits

The forest rangers and the sheep men have too many points of contention. They should get together as they did at Oroville, Cal., last month and talk over their differences. This discussion would promote harmony and there would be found less to fight over when the sheep were on government ranges.

Secretary Houston is right about one thing—he has been notifying all holders of permits for grazing livestock on the national forests that the payment of any bonus or allowance for waiver of the grazing privilege in connection with sales of livestock or ranch properties will be cause for revocation of the permit.

This is a sort of graft that should be punished with a severe penalty.

But I feel satisfied that if Mr. Houston were to look into this national forest grazing business a little closer he would grant more permits. The number could safely be increased twenty-five per cent, at the least, and I feel pretty positive that it could be doubled.

Roast ostrich is recommended by an Imperial county grower as a good substitute for turkey or goose.

How to Grow Raspberries

Methods to Produce a Profitable Crop.

APRIL is a favorable time to set out raspberry bushes and to get ready to grow a profitable crop in a few seasons. Red raspberries do best on this coast, though the black and purple varieties thrive in certain sections, particularly in the State of Washington.

The raspberry plantation should be located near a good market or good shipping point if it is to be most profitable. The roads to that market or shipping point should be such that the berries will not be injured when hauled over them.

How and Where to Plant

The same thorough preparation of the soil should be given for a raspberry plantation as for corn or similar crops. For the best results the plants should never be set in a field which has just been in sod, but should follow some hoed crop.

Land which produced a crop of potatoes the previous year and which has later been plowed and thoroughly pulverized is in the best physical condition for setting the plants.

Under the hill system of culture the plants usually are set about 5 feet apart each way. This, however, allows the use of 1-horse cultivators only. This is used to some extent in New York and other States in raising red raspberries. It has the advantage of requiring less handwork in keeping out grass and weeds, as the cultivator can be run in both directions. The berries can be more easily harvested from fields under this system.

Irrigation of Raspberries

From the time raspberry plants are set, they need an ample supply of moisture.

In the semiarid and arid regions of the Pacific coast, irrigation should begin almost as soon after the rainy season as is necessary for garden crops and should be continued at least until after the picking season is over. The frequency of irrigation will depend upon the local climate the soil type, and the management of the soil.

In Southern California, the plantations should be irrigated as often as every week during the fruiting season, and about once in two or three weeks during the rest of the dry season. A cultivator should be run between the rows after each application of water. When this is done the irrigation need not be so frequent, and the soil will be kept in better condition than without such tillage.

Under such treatment the Surprise red raspberry will produce not only a good second crop of fruit during the late summer or early fall in some parts of California, but also some fruit almost continuously from the first picking in the spring until the late autumn.

Intercropping Advisable

In order to reduce the cost of intensive cultivation of a raspberry plantation during the first year after setting, other crops that need cultivation during the spring and early summer months may be grown between the rows. Among the crops best suited to this use are the tomato, cabbage, cauliflower, bean, pea, summer squash and potato.

How Raspberries Thrive in California

In the sections where the highest average yields of red raspberries are obtained, often 6000 quarts of fruit per acre are secured. The average for the whole country, however, is not more than 1500 quarts.

In the sections giving the highest yields, a deep soil furnishes a uniform and ample supply of moisture at all times. To secure the best results, therefore, the grower should, by tillage and by supplying humus, maintain a uniform and ample moisture content in his soil, not only during the growing and ripening of the fruit but also while the canes are developing.

Some growers make it a regular practice each year to mulch their fields to a depth of several inches with straw, leaves, or green hay.

Gold for the War

By Edwin Markham.
Author of "The Man With the Hoe."

HATEFUL and horrible is war, yet our nation feels that there is something worse than war, and she is pledged to help to make the world again hospitable to freedom and friendship.

To help to end the slaughter and dishonor, we as a people must conserve and co-ordinate all our energies and resources.

Two-Handed Charity

The hour has many calls upon our generosity; but none of them is more urgent than the call to help that great agency of Love and Action—the Red Cross.

In this great organization we have a religious, a Christ-like order. Religion is always co-operative and brotherly, but we have not yet made any earnest effort to apply the co-operative and brotherly principle to business. We have tried to persuade the individual to express the ideals of the Sermon on the Mount, but we have made no earnest effort to urge society to express the ideals of the Sermon on the Mount.

Five minutes' reading of the Sermon on the Mount will convince any alert mind that we are yet thousands of miles from a Christian civilization. To speak of only one thing, it is certain that in a Christian civilization these cruel riches we see standing side by side with these cruel poverties could not exist; they would all crumble and vanish away in the fire of the social passion of the Christ.

Liberality of California

In my "California the Wonderful" I told of the liberality of our early pioneers and of the public spirit of our citizens of today. California has always led in every generous undertaking, and now that our own boys are moving toward the battlefront California will be eager to do what she can for the courageous ones who are giving to their country a full measure of devotion.

She will give her gold to reinforce her good wishes and godspeed—give it freely, give it gladly.

As for our heroes of these times, perhaps these lines of "Our Deathless Dead" may be reprinted here from my second book of verse:

"How shall we honor them, our deathless dead?
How keep their mighty memories alive?
In him who feels their passion they survive!
Flatter their souls with deed, and all is said!
In the heroic soul their souls create
Is raised remembrance past the reach of fate.
The will to serve and bear,
The will to love and dare,
And take for God unprofitable risk—
These things, these things will utter praise and pean.
Louder than lyric thunders Eschylean;
These things will build our dead unwasting obelisk."

Save Orchard and Farm's Best Articles

ORCHARD AND FARM suggests that its readers who see some particularly interesting articles in its columns should clip them out and file them away.

Articles of intense interest relative to successful experiments in all lines of husbandry appear in this publication. For purposes of ready reference, some of our readers clip these articles out, and in the course of time have amassed under the various subdivisions a vast fund of information of the utmost value.

If they trust to memory, they forget the issue in which the article appeared and to find it have to search through many copies.

Tulare Tomatoes

By D. G. Whitney

Of Exeter, Tulare County, Cal.

WHATEVER else the war has done in other lines, it has caused a great shuffle in crop selection and planting. Crops that have never been prominent before in certain localities are being planted or urged for planting in order to supply the war demand. Canning tomatoes in the South Central San Joaquin Valley is one of these war crops.

Last year a number of farmers, of whom the writer was one, were induced to plant tomatoes on contracts with canners at $10 a ton.

This year the canneries seem to intend to go at it harder than before and are rustling contracts at $15 a ton, by which means they are interesting many persons that were not interested last season. They are not likely to get many tomatoes in this immediate vicinity, even at the increased price, on account of the way the crop turned out, and from the questions that have come to the writer by prospective planters, it might be well for him to state a few facts.

Crop Was a Fizzle.

Tomato production on a big scale may prove a success here in Tulare County, but after seeing results last year the wisest plan for a prospective planter would appear be be to wait and see how things come out this season before risking time and labor on the venture.

Tomatoes in the garden have usually been very heavy producers here, but on a field scale they were as a whole a fizzle, commercially and otherwise. Since garden tomatoes did not do well either, it may have been the fault of the season, but a general failure the first time a crop is tried on a commercial scale provides a good reason for caution, whatever blame be placed on the season.

There were three plantings in the immediate vicinity last year, all fortunately rather small. One planting of two acres was plowed up after the second picking because the owner thought he would gain more by losing the rest of the crop and planting alfa than by paying for picking and shipping. Even then he gave the up to the cannery for picking them. Either of the others did very much more than pay picking and hauling expenses. They at least did not pay for the work of producing the crop. One trouble was a poor setting of fruit until very late in the season; the blossoms fell off whether the vines had much water or little, whether they were on rich soil or poor.

Work of Tomato Worm.

On the other hand, an excellent crop finally did set, a large portion of which did not mature before the contract expired and frosts killed the vines at the end of November. If early frosts had come the tomato crop would have been a total failure, the season had its good side too.

The thing that played havoc was the tomato worm, or tobacco worm. The first comers were big green worms, who ate quite a good many vines. Later on damage to foliage was much less, but an immense amount of the fruit was ruined by the entering the green tomatoes after hatching, just as a codling attacks an apple, with the result picking a man would grab a tomato in his hand and a handful of soup instead

(Continued on Page 19)

The Curse of California

Our Idle Acres—How to Put Them Under Tilth.

A MEMBER of the Orchard and Farm family who lives at Selma, Cal., writes:

"In these days when men are looking for land to cultivate and help food production why are you not sounding your old slogan, 'Unite the People and Divide the Land?' Your paper never did anything better than its attacks upon land speculators, nor is it likely to. Get out your battle-axe again and sharpen it up, Mr. Editor."

Another subscriber, who lives in Santa Cruz, writes:

"The owners of big landholdings who will not sell on reasonable terms should be compelled to do so by the government, which should loan money to farmers of small means to till the lands that are now idle. Uncle Sam asks us to raise more food, but he does not force land prices down so that this is possible. You farm editors ought to jump in and do something about it."

Battle-Axe Not Rusting

Now anybody who thinks that Orchard and Farm has ceased from its aggressive attitude toward the land sharks or the breaking up of big holdings, is wholly mistaken. Its campaign begun over a year ago has borne good fruit. For one thing it has helped to put 10,000 acres of idle land on the market—6000 of the old Stanford acres near Chico—in the new State farm settlement demonstration of the Australian colonization system. The battle-axe, far from being laid away to rust, is always out, and it is as keen and sharp as ever.

What Orchard and Farm has been doing of late has not been by way of yelling from the housetops. It has been by driving away at the big men at Washington, cabinet officers and bureaucrats, with letters that were calculated to arouse them to the situation that confronts us. Pressure is being brought to bear upon the Farm Loan Board to make it see the point and get busy with more liberal loans to our farmers.

Alive to the Situation

Echoes are coming back to us in the form of news syndicate articles showing that the East is alive to California's situation. Some of them quote the very language used by Orchard and Farm in the first stages of its fight against the big landholder. Here is a paraphrase of an Orchard and Farm article, or rather a boiling-down of its statement of the case, quoted from the Fels News Service:

"In California today huge tracts of land are lying idle that should be highly productive. The owners will not sell, because the improvement of neighboring tracts is constantly increasing the value of these idle acres. They will not even sell small portions of these holdings, for fear that its improvement would demonstrate the land's real value to the county a sessor and result in an increase in the assessed valuation. Large tracts are being held for as high as $500 an acre and yet are taxed on an assessed valuation as low as $10 or $25 an acre. Yet the universal cry is for increased cultivation and more food."

In its letter to Commissioner Quick Orchard and Farm pointed out that there were over 350,000 idle acres in California that should be put under immediate tilth and he told how to do it—by government loans to small farmers and government preparation of the land for them. It was shown how this land could be handled on very short notice and the ranchers put into possession of it.

This constructive work of Orchard and Farm was better than howling away at the land speculators who force up prices and better than denouncing the big landholders without showing how they might be adequately compensated for the commandeering of their lands for food production.

Orchard and Farm is in receipt of countless letters from land-hungry people, who want to file applications for the new State Farm Settlement lands. All these letters are referred to Dr. Elwood Mead of the State College of Agriculture, at Berkeley, Cal., who is the chairman of the Farm Settlement Board and who from the first has done noble work on this project. All inquiries should be addressed to him.

Dr. Mead has been asked to write an article for Orchard and Farm, setting forth the work and the prospects of this splendid enterprise. He has promised to do so as soon as the survey of the farm settlement lands has been done.

Cheap Land in Imperial Valley

The Imperial Valley has been cited by Orchard and Farm as an example of a section where land has not been held too high and where it is available at reasonable prices if only the government would help the small farmer with a loan that would enable him to buy a ranch and to erect suitable buildings upon it and to put it into a cultivable shape.

There never has been and there is not now an agency in California more ready and willing to help the small farmer or the land-hungry man than Orchard and Farm. This journal is alive to his interests all the while and is keenly alert in his behalf. It is no idle boast to say that it has done more to stir the State and its officials to their sense of duty in this matter than has any other journal, and it will continue to do so.

The curse of California is its idle lands, or rather, the men that are responsible for their being idle. The correspondent quoted at the top of this page need not worry. The slogan of this paper is now, as it has been of old, "Unite the people and divide the land!"

But to this it adds another slogan: Break up the big holdings and let the food-producers in!

Will the Orchard and Farm Family Help?

Send a Letter to Your Congressman, Like This

Hon. ———— ————

Washington, D. C.

Dear Sir:

In these war times when there is such a loud cry for food production there are in California over 350,000 acres of cultivable land lying idle, most of it held in large tracts. Please introduce a bill that will open this land up to settlement. Also please see to it that more liberal loans are made to small farmers and that the government enables them to cultivate land and erect suitable farm buildings upon it.

If you wish particulars as to how this may be done write to Orchard and Farm, Los Angeles, whose editor will supply you with facts and figures.

Yours very truly,

.....

Address.....

Corn in California

By Hardy W. Campbell,

The Famous Dry Farmer of Nebraska.

IN regard to the raising of corn in California, of which there has been so much discussion of late, I wish to say to the readers of Orchard and Farm that I know I can grow good corn and plentiful yields of it in your State.

I can duplicate in California what I have done in Nebraska and Colorado. In several cases I have grown big crops of corn in districts where drought or other adverse conditions have brought the yield of the old-fashioned farmer down to almost nothing.

Is my system a secret? No, But the old-school farmer won't follow it, even if he is told in detail just what it is. He must be shown.

In the first place, the ground must be properly prepared, and you have to begin early to prepare it. You must plow right, you must disc right, and you must harrow right, and you must cultivate, cultivate, cultivate.

Farmers make a great mistake as to seeding. They plant four kernels of corn in a hill. I plant one. The one stalk proceeding from that kernel will produce more ears and larger ones than if you crowd four stalks into the hill.

Remedy for Cool Nights

About the cool nights that stunt the corn: I plant one month later than other farmers do, and the spring cold doesn't get a chance at my corn. Corn planted a month late will have few, if any, worms to prey upon it, and it will not need any more water if the ground is properly prepared.

If you plant and cultivate early you run out of material for growth—nitrogen and other elements—at the very time the ears are beginning to form, and that is the time when you must do your most effective cultivation.

The great thing is to have a proper mulch and to maintain it—that is, you must firm your under soil and keep your top soil particles down so that they range in size from that of a grass seed to a chestnut.

Also it is a matter of tools. Few California farmers use the right kind. The matter of a harrow tooth seems a small affair, but it is a big thing in keeping your soil in right condition.

105 Bushels to Acre

One man got 105 bushels of corn to the acre by following my system on land that had been producing less than half that amount. They say that Campbell gets his big results by fallowing and planting every other year, but I am by no means an advocate of that plan.

And you needn't talk to me about wornout soil. I have contradicted absolutely the fallacy that big yields of corn or grain necessarily exhaust the soil. It is all in the way it is handled. I produced a larger crop of wheat from a field that had been sown successively every season for thirty years than was produced from a field right alongside of it that had been sown for only eight years.

Let Legumes Work for You

THE farmer who grows no legume crop misses profits every year. Legumes not only add nitrogen to the soil but also add organic matter which makes the soil mellow, easily worked and friendly to plant and bacterial life.

A cover crop of legumes will largely prevent the leaching of soluble nitrogen, lime, phosphoric acid and potash which are likely to be lost from bare land during the fall, winter and spring.

Making Beet Syrup

By A. J. Williamson,
Of Colalla, Idaho.

THE first operation in beet syrup making is to dig, top and wash the beets. They should be washed clean, for if the soil goes with the juice into the evaporator it will settle to the bottom and be apt to burn and taint the syrup.

Strain the juice at some convenient point between the press and the supply barrel. A good thing for this purpose is a coffee sack washed clean and spread over the barrel.

The pulping may be done in various ways, the object of which is to reduce the beets to as fine a pulp as possible so as to free the juice. Operating on a small scale, an ordinary cider mill will do to grind the beets and press out the juice; on a larger scale, one would need such a mill and press as is in use in cider works.

Boiling Down the Juice

The next step is to b 'l down the juice. This may be done in a vessel all the way from a granite dishpan on the kitchen stove to an evaporator twelve feet long by three feet wide; quite a considerable amount can be handled in a twenty-gallon copper kettle. I would avoid a black iron kettle, as it would be apt to make a dark colored syrup.

For the evaporator, have a tinsmith take a piece of sheet metal four feet wide by thirteen feet long and turn up six inches on each side and the ends, rolling the top over a wire for stiffening, similar to the way they make bread pans. Now begin at one end and put partitions four inches high, attaching the first to one side and extending it across to within six inches of the other side of the evaporator pan. The second partition is attached to the opposite side from the first one, and so on across the whole length of the pan, the partitions to be six inches apart and well soldered to the pan. Thus the juice running from the supply barrel onto the first part of the evaporator pan travels back and forth until it reaches the outlet at the lower end. The best metal for the evaporator pan, of course, is block tin or copper. This is expensive. A good grade of galvanized iron will do very well.

Skimming the Syrup

Mount this evaporator pan on a brick furnace, the walls of which should be about two feet high and on a down grade of one inch from the upper to the lower end. One can soon learn how to work to make the syrup the right consistency. If the current is swift and makes thin syrup, do your skimming against the current. If slow skim with the current. Also, when the fire is smart skim with the current and when low skim against the current.

The door or stoke hole should be well constructed so as to regulate the draft. The smokestack should be an eight-inch stove pipe or, better still, two six-inch stove pipes set well apart with dampers in them.

The rocker evaporator is simply the evaporator pan mounted on rockers that reach the ground; it is thus designed for convenience in moving from place to place. To close in the fireplace, sheets of iron are stood on edge from the ground up to the pan.

When you first begin to cook off, the whole length of the pan must necessarily be covered with fresh juice. This must be allowed to run at the outlet and put back in the evaporator at that point at which its consistency belongs until the product becomes a syrup. This you will find by taking a little syrup on a plate and cooling it.

Preserving the Products

If you should scorch a batch, save it. It makes an excellent addition to your calf or pig feed. Also, there should be some provision made for drying the pulp. It makes good feed. Guard against the pulp freezing before it is thoroughly dry.

After the syrup is made it should be put at once into air-tight containers to prevent fermentation. It may be canned or put into kegs or barrels.

System in Rabbit Culture

Boiled Down Facts As to Keep and Feed

SYSTEM in rabbit culture as in anything else, pays well. Here are some boiled-down facts that should be pasted in your scrapbook if you are a rabbit keeper:

Housing—The housing of the rabbit may be handled like the modern filing system, tier on tier, house on house, and in this way taking up but little room.

The house should not be deeper than an arm's length so that a man can easily reach in. This will be about 24 inches. Each doe should have a house 5 to 6 feet long and 18 to 24 inches high, according to her size.

The doe requires a good nest, made either by a partition in the house, or a grocery box, with a hole in the end, set in the house.

All floors should slope.

Period of Gestation—From the time of breeding to the time of littering is 29 to 34 days, 30 days perhaps being the average period.

The fact the doe can produce a litter in such short time does not mean ten or more litters a year as the ill advised enthusiast may think. Three, and at most four, litters a year are all that should be expected of the doe.

Nursing Period—The nursing period should not be less than six weeks; for the heavy races eight weeks, and better, ten weeks. A good way to wean the litter is by removing a young one a day, at the same time cutting down the food of the mother to reduce the flow of milk.

Feeding—The rabbit requires two ounces of well balanced ration per day per pound of liveweight; e. g., the six pound rabbit will require 12 ounces of food containing nitrogenous or protein matter, nitrogen free matter, and fat in proper proportions. A ration would be: hay, 3 ounces, roots, 8 ounces, dry concentrates, 1 ounce.

The aim of feeding is to keep the animals coming on steadily—growing and fattening at the same time.

Development—The life time of the rabbit is 7 to 8 years. The medium sized races grow very little after six months. The young fellows of the medium sized breeds should gain 3 to 4 ounces in live weight a week; the giant breeds should gain 7 to 9 ounces in the same time.

The big strain comes on the doe with youngsters at the end of the first week to the fourth week, and she must be fed liberally of concentrated nutritious foods.

Fattening for Meat—At the end of the tenth week the real fattening should be started and this should be finished in three weeks. A guide for fattening is:

1st week: Feed ¾ pound dry substance per head;

2d week: Feed ¾ pound dry substance plus one ounce or more;

3d week: Feed 1 pound 1 ounce dry substance per day.

Essentials of economical gains are quiet, little moving about and plenty of food.

When the animals are used to each other they may be fattened together in a pen, otherwise the fattening animals should have separate boxes.

Food for the Rabbit—For developing the subject of feeding rabbits, the food of the rabbit may be classed roughly as green feeds, roughage, concentrates and mashes.

Green Feeds—The rabbit makes great use of the green feeds—the grasses mixed with grass plot herbage and weeds. It is easier to name what the rabbit should not eat rather than what it should eat.

The rabbit should not be fed buttercups, nightshades, foliage of the potato, meadow horse tails, rhubarb, onions, frosted roots, wilted green fodder, dirty, dusty feeds (feeds from dusty roadsides). It should be remembered some of the feeds liked by the rabbit, e. g., dandelion, contain active medicinal substances and when fed in quantity give rise to serious disturbances.

Alfalfa—One of the best feeds.

Artichokes.

Bindweed—Rabbits are very fond of bindweed, but they must not eat too much.

Broccoli—May be fed fairly freely.

Cabbage—Too watery and should be used with caution.

Carrot—Best obtainable feed.

Cauliflower Leaves—Same as for cabbage.

Celery—Animals will eat only small amount.

Chicory—May be fed fairly freely.

Clover—One of the best feeds.

Coltsfoot—Excellent.

Comfrey—This plant is of unusual usefulness. A patch once started will last twenty years.

Couch Grass—Excellent.

Dandelion—Rabbits very fond of the danlelion, but when fed in too large quantities it produces diarrhoea.

Ensilage—Grasses, clovers, unripe grain, beet leaves, weeds, may be made into a valuable ensilage and fed during the winter months.

Grasses—Rabbits do well on grasses during May, June, July.

Lettuce—Too watery and should be used with caution.

Pea Vines—Make valuable dry feed.

Potatoes—Baked or boiled, but not raw.

Rutabaga—Fair feed for winter.

Shepherd's Purse—Excellent.

Swedes—Feed November to February.

Vetches—Excellent feed.

There is a variance in opinion on feeding green feeds wet with dew or rain. Better take no chances.

Roughage—Good soft hays (especially wild hays) play an important part in winter feeding, especially hay cured to develop the pleasant aroma.

Oats and wheat straws are very useful feeds.

Concentrates—Oats are very useful in feeding rabbits, but care must be taken to have them dust free. Barley and corn may be used to advantage.

Mashes—Mashes made of cooked potatoes, wheat and rye middlings, cracked barley with water and a little whole milk or skimmed milk, make valuable feeds for rabbits.

Stale bread (free from mould) makes good feed.

How Often Shall Rabbits Be Fed?—Some keepers say the rabbit should be fed three times, others say two times a day. It would seem to be not a question of how many times, rather a question of what food and how much food and how fed. Hay should be available all the time.

The youngsters when first taken away from their mother should be fed 4 to 6 times a day.

Poetry and Hens

By Charles Weeks,
Famous Poultryman of Palo Alto, Cal.

A PLEASANT country home, hidden by a growth of luxuriant vegetation, should be the dream of all. It is within the power of almost all to possess this garden home—a paradise on earth, a little bit of heaven all your own, built from the sunshine, earth and water. Sunshine, soil and water, mixed with energy, directed by knowledge, will produce a wonderland.

Every child should grow up in a garden. It is the natural heritage of the sons of men. The most abundant, natural life on earth comes from creating from the soil. All the gold in the world will not buy the health, strength and peace of mind of the man who loves his garden.

Our schools should be surrounded by beautiful gardens—gardens tilled by the pupils themselves, so that a love of this natural way of living may be inherited. Dry, barren school yards are a disgrace to our present state of civilization. Every school should have its garden teachers, and every luxury that grows from the soil should grace the grounds so near our youth. Production from the soil can be made an interesting game, and how far reaching it is!

Child and Garden

Children that learn to love flowers will never grow to be bad men and women. Boys that learn to grow flowers, berries, fruits and vegetables will never be satisfied with a meaner calling in after life. It matters not what vocation they follow, they will always have the ability to produce a living from the soil, whatever happens.

It is a delight to grow the things that are set before you at your own table. When you eat luscious fruits grown by your own hands you have a two-fold pleasure. Green corn gathered with your own two hands from your own garden, eaten at your own table, gives a satisfaction not to be compared with any other.

A rich soil is the first essential to rapid plant growth; then water and sunlight. Most soils can be made better than they are by fertilizers. All soils that are cropped continually need to be replenished. This is a serious question to those who cultivate the soil.

Best Place for Poultry

Right here is where poultry raising works hand in hand with the garden home. Poultry manure is the richest of fertilizers and when mixed with the soil and well watered, will produce astonishing results.

Modern methods of egg farming require very little space. The home garden, with berries, fruits and vegetables, makes the finest combination with laying hens. All the waste greens can be fed to the hens. It sounds like a fairy story, but it is true.

The fertilizer from the poultry houses is mixed with the soil, which produce the green feed that makes the eggs, thus making an endless round with an ever-increasing production from the soil. The more greens raised for the hens on a given plot of ground, the greater the profit

Profits From Hens

Far from the noise, uncertainty and bad air of the restless and relentless city, the family in its own garden home has every luxury that money can buy, and many that money cannot buy.

The profits from the eggs from 250 well bred hens, correctly fed, alone

(Continued on Page 30)

My Colt Venture

By D. J. Whitney,
Of Exeter, Tulare County, Cal.

HERE is a common and very false statement: "Every farmer ought to have a team of good brood mares, for he can do his work well and raise in addition a colt or so every year." This sounds well, but it is bad advice. I have two fine colts, full sisters, and speak from experience.

Nobody has any right to raise colts but the man who has plenty of good cheap pasture. Even then he can probably do far better raising mules, and probably far better yet raising beef or dairy cattle.

And yet the horse is about the biggest thing in farming. A man's team is almost constantly with him on a farm and mostly they do the work while he bosses the job.

And so horses are very important and very valuable. Nobody on the job can ever see anything but what they always will be necessary and invaluable on a farm. The trouble is that the usual production is greater than the demand and horses can be bought cheaper than they can be raised. We have today, in proof of this statement, high prices for everything except horses, and there is a big war demand for horses that should force up prices if anything would, but horses seem to have a tough job to hold their old money value, and there is a surplus in spite of all. It is partly due to competition from the automobile, motor truck and tractor and partly to the fool notion that because a man owns a nice mare, he might as well raise a colt as not.

The Right Kind of Horse.

The only kind of horse worth raising, as nearly as I can see, is the large, sound, strong, big-boned draft horse—not the general purpose farm horse, so-called, but the kind a man would want for steady work at heavy teaming. The locality where this is written is one where fruit and stock country join. General purpose colts are in an excess of a plenty; draft colts fewer than scarce. The driving horse is out of it altogether. Automobiles are too cheap and easily operated to make a driving horse worth its board. Hay prices for the last year or so make a horse eat about $100 worth of feed per year when hay alone is fed, and life is too short, or too valuable, to spend half a day in making a round trip to town on urgent business when a machine will do the trick in an hour.

With the dropping out of the driving horse, the medium-weight horse that is supposed to do for road work or for the plow is going out too, for the automobile has made horses more valuable for heavy pulling only, and that means that large and strong, though slow, horses are what is wanted, and doubtless what is true here is true everywhere.

Horse Flesh Versus Beef.

[illegible] that a man has pasture for [illegible] for he will find that he is considerable of a fool if he starts to [illegible] colt without plenty of pasture [illegible] these days, the best way [illegible] profit and loss is to [illegible] of colt raising with [illegible] cows or steers, [illegible]

[illegible] s $15 for [illegible] son, or [illegible] When the colt

[illegible]

Good Way to Pickle Olives

The Fermentation Treatment of the Fruit.

THE green pickled olives of commerce usually known as Queen olives are prepared by a fermentation process. This fermentation produces lactic acid which gives them their peculiar piquancy and helps to preserve them.

Experiments at the University of California have shown that pickles practically identical in character and quality with the imported Queen olives can be produced in California from the Sevillano and Mission varieties. The Manzanillo can be prepared successfully in the same way.

Other experiments have shown that this pickling process can be applied successfully to ripe olives, at least to the Ascolano variety.

It has been shown also that ripe olives, pickled in the usual way, or by the methods described here, can be given the piquant quality by a supplementary fermentation.

Pickling Green Olives

The olives are pickled after they have reached a good size, but before they show any sign of coloring, either red or yellow.

They are placed in a 2 per cent lye (two and one-half ounces of lye per gallon of water) and left until the lye reaches the pit. The lye is then replaced by water changed twice daily until all taste of lye has disappeared.

They are then placed in 7 per cent brine (nine ounces of salt per gallon of water).

All these operations should be carried out with as little exposure of the fruit to the air as possible.

The olives are kept in the brine in closed receptacles at ordinary room temperatures until fermentation has developed the characteristic flavor and acidity.

Time of Brining

This will require from three weeks to several months, according to the temperature and to the amount of flavor desired.

When the fermentation has reached the desired point, the brine is taken off, strained, or filtered, and boiled. The olives are rinsed quickly with water and then covered with the hot brine. They may be kept in barrels, or preserving jars without further treatment.

If intended for shipment or to be kept for a long time, they may be placed in glass preserving jars or lacquered cans. These are then filled with the boiling brine, sealed, and heated at 212 degrees Fahrenheit for about 20 minutes.

The Ascolano olive gathered just as it was turning cherry red, the stage of ripeness considered best for ripe olives, was pickled by the fermentation method just described.

The result was a light greenish yellow pickle with white flesh, crisp, and of excellent flavor.

The method offers a simple method of producing a new kind of pickled olive that might be preferred to either the green or the black.

Olives of Black Color

Ripe olives which have been pickled in any of the ordinary ways may be subjected to a fermentation that gives them some of the sprightliness of the green olives and improves them to many tastes.

When the ripe olives have been pickled and are ready to can, they are placed in a 7 per cent brine and allowed to ferment in exactly the same way as described for green olives.

Assorting Olives for Pickling

The fermentation bleaches the olives a little, but they can be darkened by exposing to the air for a day or two.

They may be packed in the filtered and boiled brine like the green olives, but the best results are obtained by putting them in lacquered cans or glass jars without liquid.

They are first heated with boiling brine, the brine poured off, and then, after sealing, the cans are sterilized 30 minutes and the jars 40 minutes at 212 degrees Fahrenheit.

At present, we have two main types of pickled olives: That represented by the green Spanish Queen olives and that represented by the Californian black ripe olives. The latter is more nutritious and wholesome, while the former has a sprightliness of flavor relished by many.

The two methods of pickling ripe olives by fermentation described here combine the good qualities of both types and avoid their defects.

The second method yields a black olive, and the first, one which, while equally ripe and wholesome, is green or whitish in color.

The first is simply a probable improvement of our present type of ripe olives, but the second produces an entirely new type.—F. T. Bioletti and W. V. Cruess.

Lumber Is High

By Burton Hale
Statistical Writer for Orchard and Farm.

THAT little jag of lumber you bought the other day—2000 feet of rough pine and 1500 feet of rough redwood—what did it cost you?

Pretty close to a hundred dollars, didn't it?

Did you sigh a little as you paid the bill, or did you just say, "Well, I guess I'll have to charge that up to the Kaiser. He's making all the high prices nowadays."

Three or four years ago you could have bought 5000 feet or more of the rough stuff for what that 3500 feet cost you now. No wonder people are not building many houses or barns out in the country or anywhere else.

Is there any other reason for the high lumber prices besides the war?

Yes. Lumber was getting pretty high before hades broke loose in Belgium. The war has stiffened the prices of every kind of building material, and lumber has gone up with the rest.

But it shouldn't be charged to the war—not altogether. Ask the lumber manufacturers and they'll tell you they have to pay more for labor, for transportation and for everything else that goes into the manufacture and shipment of redwood and pine.

Lumber Profiteering

What they won't tell you is that they have fixed things so as to get bigger prices all along the line. The lumber combine isn't losing many points in its business these days. It represents about as good an example of profiteering as there is to be found anywhere.

Read this report made by the Federal Reserve Bank of San Francisco and you will see that the war doesn't cut so much figure in lumber prices, nor is it likely to do so for some time to come. We are not fighting the Teutons with wooden staves nor with wooden guns. Metal is the material used in this war, and naturally it has gone away up. As for wood, of course it is going into a good many ships, but—well, read the report:

"The lumber output is reported as almost 80 per cent of capacity, with 90 per cent of the mills in Oregon and Washington running. It is reported that shipbuilding activities have not had large influence, as only about 8 per cent of normal output goes into this use, and building requirements are light."

Building Must Wait

So when anybody tells you—retail man or wholesaler—that the war has boosted lumber prices, just reply that you don't take much stock in that story, and refer him to the Federal Reserve report.

Farmers need a good deal of lumber. They want it for sheds, for irrigation systems, for chicken houses, for all sorts of things. Pipe for irrigating, where it is not handy to build of cement, should be of galvanized iron—but, bless you, that is away up above the means of most ranchers. A good many are resorting to the new wooden pipes and find them cheaper and quite durable; but, take it all around, lumber for most purposes is so high that when a farmer gets a quotation from a dealer he is very likely to say that he guesses he'll wait a while before he orders that few thousand feet he wanted for the stable or the henhouse.

And as for that new bungalow that he promised Mary he would build for her in the spring, well, it's too bad, but Mary will have to put up with the old ranch house a year or two longer.

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Complete detailed plans, elevations and instructions with each house. Everything sent in one shipment.

Finest quality lumber, subject to your inspection.

Your carpenter accomplishes more in less time.

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For Country Road Hauling

OF ALL the motor trucks offered for farmers' use, the **International** should be, and we believe is, the most satisfactory.

This Company knows the country — roads, farms, and all. Farmers know our standards of quality and service. When we offer a motor truck for farmers' use, it is understood that the truck will do the work expected of it at a cost farmers can afford.

The **International Motor Truck** is built for carrying capacity loads on country roads. It gives satisfactory everyday service, the kind that farmers must have. When an emergency comes — a tough piece of road, a steep hill, a rush trip, a bad day — the **International** has the reserve power, speed, and endurance to carry it through.

There are four sizes of **International Motor Trucks** — 1,500, 2,000, 3,000 and 4,000 pounds capacity, with bodies suitable for every kind of hauling. Chassis prices range from $1,450 to $2,550 cash f. o. b. factory.

If you know our local dealer, see the truck in his showroom. If not, write us and we will see that you get full information promptly.

International Harvester Company of America

(Incorporated)

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Few Cars for Fruit Crop

Dehydration and Evaporation Must Be Resorted To.

THE problem of what we shall do with our fruit and vegetable crops this year is looming as a big and pressing one.

Government use of the railroads is going to put thousands of freight cars beyond the reach of the farmer and orchardist. He will call for transportation for his products in vain.

It's a great big vital question.

What's the answer?

Drying, dehydration and evaporation.

To take care of the situation in the Sacramento Valley enormous plants are being erected for dehydrating fruits and vegetables, and they should be built forthwith in all our great producing centers.

When you take the water out of fruit it does not require anywhere near so much room in a car, therefore less cars will be used after the dehydrators and evaporators get through with their work.

An enormous tonnage of dried fruits and vegetables has been ordered for the army and navy. Our allies want large quantities, too.

The railroad people are greatly interested in the new drying enterprises and are encouraging them in every way possible. Mr. W. H. Harris of the Great Northern, known as an evaporating engineer, recently paid a visit to the office of Orchard and Farm, and after talking over the freight situation made the following statement for publication in this paper: The statement is very technical, but it shows what science has been doing in the way of improved methods of evaporation of fruits and vegetables:

Big Dehydrating Plants

"The largest dehydrating plant in the world is at The Dalles, Ore., and the second in size is at Salem, Ore. The city of Ashland, Ore., is now considering the installation of a near-essential evaporation plant for fruits and the utilization of the natural carbonic acid gas, of which it has a great quantity, for the packing of the fruit.

"The city of Ashland, as a municipality, owns and operates mineral springs and carbonic acid gas pipe lines. It has the longest carbonic acid gas pipe line in the world, some seven miles. The fire alarm whistle is automatically blown by the gas pressure of the line.

"It is quite probable that all near-essential evaporation will in the near future be carried on in chambers filled with carbonic acid gas, thus removing the fermentative water of the products by the gas, thus carbonating the water carrying the essentials and finally packing the products in the gas.

"The dried prune now has a definite standing in table economics and in the immediate future, by virtue of near-essential evaporation methods, the prune will be a most prized and constant food.

Improved Dehydration

"It is looking backward to attempt to describe the stack and tunnel dryer. It was a prune uplift, and let it go at that. Ever-fresh and near-fresh, dehydration, were thought suggestors and Sun-Maid, Nationalized Raisin consumption.

"All of the foregoing hyphenates did not suggest an essential, but they all were attention arresters and led into research work, which resulted in intelligent dehydration, which is the circulation of heated air over the product to remove the fermentative water.

"It is the application of the horizontal ray of heat, rapidly expelling from the dehydrating chamber the moisture-laden air. Dehydration produced a superior product from every point of view. Dehydration methods were an efficient water remover, but not a conservator of fuel nor the essentials of the products. This was quite readily realized and led to the process now known as near-essential.

The essential of fruits and vegetables is that portion that facilitates their appropriation by the human machine. The essentials are the aromas, the oils, the salts, the acids, all of which are the automobiles of the stomach and the lubricants of the bowels.

Preservation in Gas

A portion of these essentials are very volatile, some become chemically fixed by heat, others are denaturalized by heat. However, whatever the action, the important thing is to retain them in the cells of the product, or, if the cell structure is ruptured, to retain the content on the surface of the product—all of which is readily done by the evaporation of the product in its own heated atmosphere, that is, by condensing the water removed by the heated air and then returning the same atmosphere over and over the product.

Only a small portion of the essential will be condensed in the water removed, and even this is returned to the product after evaporation.

The evaporation atmosphere becomes dense with the essentials, and if the evaporated product is removed from the evaporating chamber into a tight chamber of carbonic acid gas when the temperature of the product is not below 100 degrees Fahrenheit the entire essential of the product will be cell-fixed or become absorbed by the mass. There is no escape for any of the essential, as the carbonic acid gas is heavier than air and therefore there can be no oxygen action in or on the product. Then the product can be packed in cartons filled with the gas, and as it is a very potent preservative no change can take place.

The near-essential method of evaporation comprehends the conservation of the heats formerly expelled from the evaporation chamber. The cost of fuel is only about one-half. And again, by the perfect combustion of the fuel used, wood, gas or oil, and by the oxidization and hydrogenization of the results of the said complete combustion of the fuel used, the entire heat units of all the fuel are made available and are conveyed directly into the evaporator chamber and become the atmosphere of the product to be evaporated. There are no chimney or stack losses; this has been made possible by proper furnaces for wood, by the treatment of the products of the burning of gases, and by the perfection of generator oil burners, which turn oil to gas and burn the gas to a finality.

Result of Long Research

It has taken some years of research work and travel to find the several factors than now can be utilized and assembled to make possible near-essential evaporation. The process makes possible the conservation of fuel, containers and transportation, not to mention the value to the human element.

The process makes it possible to evaporate apples, pears, potatoes, and rot and corn on the cob. All that is necessary is to control the time, drawing the moisture from the center of the product via the conducting, through the skin of the product. In so doing, the essential of the product are induced from the outside to the inner portion of the product and the structure is less liable to be ruptured.

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Makes wonderful combination meal-feeds from clover, cornstalks, snapped corn, bean straw, pea vines, oats, rye—Cracks peas, corn, beans!—Handles leaves, stems and all! Saves waste—doesn't injure color of hay!

Meal capacities range from 1080 to 2340 lbs. per hour (600 to 900 lbs. meal per hour with Junior Mill driven by 6 to 8 h. p. engine).

Smalley Silo Filler Sevan Sizes

Makes silo filling as easy as A B C! Grip-hook Force-feed TABLE and [illegible] a rigid automatically feeds [illegible] powerful, swiftly revolving, [illegible] mower-like knives!—turns out [illegible] of unbeatable rich-[illegible] silo tonnage—pays [illegible] itself [illegible]

Wis.

New Wrinkles

Reported by the Orchard and Farm Family.

My Milk Discovery

DID you ever notice that where drink of any kind is handy that all kinds of animals, including man, will drink much oftener than where it is rather hard to get at?

This sounds like retailing a perfectly obvious fact, but how many dairymen are there today who are relying on the old-fashioned system of letting their cows go away down to the corner of the field to get a drink out of a tank or trough or muddy pool? This invariably results in a cow getting less water than she should have—perhaps drinking only about 50 per cent of what she would were the water right at hand.

I studied over this matter for some time before I tried the experiment of having tanks here and there about the field and also giving the cows plenty of water in their troughs when they came up at night.

One cow that I noticed had been giving only a couple of quarts of milk a day, but when I gave her all the water she would drink—had it handy for her all the time—her milk flow increased over one-third. So it ran right through the herd.

I set to work to plant tanks and troughs wherever the cows congregated under the trees and along the fences. Also I had some troughs made near the barn where they could get the water by lifting the lids with their noses.

By this means my income has been increased over 25 per cent, for it is a fact that the more water you give a cow the more milk you will get from her. I would recommend this system to any dairyman. They might not all do as well as I did, but I think they would find that it would pay them handsomely in most cases. It would cost little to try it, anyway.—M. A. Carruthers.

Why I Use a Milking Machine

I WAS very much opposed to the use of the milking machine for my dairy at first, but I got over my prejudice by going around and making close inquiries from my neighbors who use them here and there in that part of the San Joaquin Valley where I live.

Some of the dairymen who didn't have these milkers said they wouldn't use them on any account, as it hurt the cow and made her dry up. This is all nonsense, as I found after I had tried a machine for a few months. In fact, it worked just the other way about. I got more milk and it seemed to extend the cow'c lacteal period. And now I hear that Interested Jap's Santa, the Jersey that holds the State record for her breed, produced 9052 pounds of milk and 588 pounds of butter fat during her lactation period last year and was milked with a milking machine three times a day all the while.

We live and learn. I use milking machines altogether now and wouldn't be without them.—R. B. S., Modesto, Cal.

Our Community Grinder

I LIVE in a California region of rather small ranches, where most of the people keep chickens and give them green feed as well as concentrates, as recommended by Charles Weeks in Orchard and Farm. Feed grinders of any consequence are rather expensive, and as we were paying out quite a lot of money for this grinding, it occurred to me that it would be well for all of us to chip in and buy a community grinder. A few

(Continued on Page 14)

Save the Bean Crop by Dusting with a Niagara Dusting Machine!

Dusting is the quick, scientific way to destroy pests. Costs **less**—accomplishes **most.** Where 50 hours and the services of three men were required to spray an orchard with liquid—two men **dusted** the same orchard with thoroughness in eight hours. Our Bean Sulphuring Attachment will throw the sulphur into the vines eight rows at a trip. One man with a team can cover 40 acres in a day. Niagara Sulphur will destroy Red Spider quickly, effectively, economically. Write for complete information, prices, testimonials, etc. There is a Niagara Dusting Machine for every purpose. Ask about Niagara Dusting Sulphur.

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In "straight" Pianos we carry a very comprehensive line ranging in price from $285 to $3000—each "make" has been selected by us as the very best of its grade.

In the neighborhood of $300 we carry the Aldrich, a good dependable piano at a very moderate price—it will give the purchaser excellent service.

From $375 to $450 we offer the Stroud, Kurtzmann, Emerson and Estey Pianos—four very substantial "makes" which are giving a lifetime service in thousands of homes throughout the United States.

From $450 to $600 we have the Krakauer, A. B. Chase and Weber—these instruments are high grade instruments, in fact they are old and famous makes.

Then at $575 and upward there is the Steinway, the Standard by which all pianos are judged—To have a Steinway is to have the Best.

Bear in mind we will arrange convenient terms of payment on any Piano—even the Steinway.

We invite you to call at any of our stores—or write us asking for illustrated catalogues and prices.

We are dealers in Steinway and other Pianos, Pianola Pianos, Aeolian Player Pianos, etc.

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Armco Iron Culvert & Flume Manufacturers' Association
CINCINNATI, OHIO

The Bee-Keeper

By George A. Coleman.

IN THE average-sized family, there will usually be found one person with good, steady nerves, who is a keen observer, a gentle mover, and a lover of live things. Let this one be the beekeeper.

Bee Smoker—A standard root, or some other reliable bee smoker, is a necessity.

Bee Veil—The best is one made of black netting (cotton tulle), with either a silk or black wire facing in front of the eyes; made with a rubber band in the upper end to fit over the crown of any old straw hat, with ample skirts and a rubber band also at the lower end; a strong cord at either corner, tying snugly around the waist, long enough to reach around and tie in front, keeping the veil from creeping up around the neck, and the bees from crawling up under, which they will do if the least space is left open around the bottom.

Hive tools are also a necessity. A good, strong, wide-bladed screwdriver will answer for one, but the special steel hive tool here illustrated is much better and will be found to be the most useful tool about the apiary; a broad-bladed glazier's knife will be found useful in scraping hive bodies, frames, etc. The other tools illustrated will all be needed, and are usually found in the equipment of any well regulated ranch.

Bee Gloves—Are provided for the timid, but will soon be discarded as too clumsy and hot, causing more stings than they prevent. Learn to handle the bees with your sleeves rolled up to the elbow, and you will receive very few stings.

How to Handle Bees

In preparing to examine a colony of bees, first light up your smoker, using rotten oak wood, old burlap sacking, or oiled waste for fuel; something to make a good blue smoke, not a smudge, the object of smoke being to alarm the bees, causing them to fill themselves with honey, in which condition they are easily handled, but not to suffocate or injure them.

Put on the bee veil and tie down the pantaloon legs (women should wear bloomers or overalls) well around the ankle, or use bicycle clips.

With smoker and hive tool in hand, approach the hive from the windward and back, and preferably on the right side, never in front; give a few puffs of smoke at the entrance to settle the guards; with the hive tool pry up the cover and super cover about one-eighth of an inch, blow in a few puffs of smoke, wait a minute, then carefully remove the cover, placing it on the ground at the back of the hive; (after a little practice you will use it turned on edge as a seat) give a few puffs of smoke on the tops of the frames to drive the bees down and quiet them, and then hang the smoker on the front edge of the hive, where it will be handy if needed.

With your hive tool begin on the frame next to you and pry it loose at each end, as you will usually find it stuck fast with propolis if you find that abomination, a division board, stuck in between the hive wall and the frame, take it out and do not return it.

What You Will Find in the Hive

The first frame you will take out you will find nicely drawn out. Remove it and place it against the back of the hive out of your and the bees' way, in order that you may have room to work with the other frames.

Now look out, there are bees all over the next frame, and they have their stings ready for instant use; therefore handle carefully, and don't drop it! Get a good, firm grip with the thumb and forefinger on each end of the top bar, being careful not to crush a single bee; lift up the frame very slowly, never mind the bees, they will get out of the way; if you should happen to get a sting, don't drop the comb; hold on to it, and quietly remove the sting with a scraping motion of your thumb nail so as to get the sting out without squeezing the poison sac which would put more poison in the wound and make it hurt worse.

Then go on with your work; the bees will sting you some more if you don't. You will find the bees gathered on the upper third of the comb sticking their heads into the honey cells and loading up on it; you need not fear their stinging while they are doing this.

Just below the honey circle you will see a circle of cells filled with a brownish-yellow sticky-looking substance—"the bee bread," or food for the young larvae. Watch and you will see a worker bee with a mass of this pollen, for that is what it is, on the hind legs, which she will presently dump into one of these cells. Hold the frame up to the light, getting the sun right into the cells if you can.

You will find some cells with white looking objects of various sizes—the larvae. In some cells you may find white objects standing on end in the bottom of the cell; these are the eggs which will hatch into the larvae. In another cell you will find a tiny white larva curled up at the bottom in a mass of milky fluid—the "Royal Jelly"—upon which all larvae are fed for the first three days, and which is a substance furnished by the young nurse bees from certain glands in the head in combination with stomach secretions.

Young Bees—the Queen

Other cells you will find capped over, which look very opaque—not transparent like capped-over honey cells. These contain the pupal cases which have been spun by the larvae and in which they change to the adult bee with wings, legs and antennae.

Now look over the comb and you will see some young bees just emerged, their wings all crumpled yet. It will take them about three days to get to work. They will be nurse bees now for two weeks, feeding the larvae, polishing up cells and doing all of the work of the hive. They will then become field bees, gathering nectar and pollen and bringing it to the hive, a work at which they will continue until they drop dead on some return trip loaded down with honey; well behaved and healthy bees never die in the hive.

In going over the frames, one after the other, methodically examining them and placing them back in the hive in the order taken out you may suddenly come upon the queen traveling leisurely over the comb, examining each cell carefully to see if the bees have properly prepared it for an egg; you may recognize her by her long pointed abdomen, which if you are patient and quiet, you may see her insert into a cell and deposit an egg at the bottom, taking about half a minute for the whole operation.

If it is during the spring, or breeding season, you may run across two or more very large cells on the lower

edge, or perhaps on the side, of some frame—a queen cell, from which a virgin queen will hatch if it is left alone, and when this happens the bees will swarm, the old queen going off with the swarm, leaving a young queen in the hive, so if you do not want them to swarm, or do not want increase, carefully remove these cells and destroy them once a week during the breeding season. If you do want increase, take out a frame with a perfect queen cell on it, allowing the bees to remain on it, and another frame filled with capped-over brood, also one filled with honey and "bee bread," and put them in one side of the new hive, filling the balance of the hive with combs or frames with full sheets of foundation; place this hive on a new stand at some distance from the old hive and close the entrance so only a few bees can get out at a time.

While you are at work you will probably be alarmed by a loud buzzing and several big, clumsy bees getting in your way continually. These are the drones or male bees, their only function being to mate with and fertilize the queen. They do not work and the nurse bees are even compelled to feed them, since their tongues are cut short and they are unable to feed themselves, they are therefore a continual drain on the resources of the hive and the bees get rid of them as soon as possible after their function is performed, by taking them out of the hive and dropping them where they cannot get back.

Cleaning Hives and Frames

In the first examination in the spring you will find the combs all stuck up with propolis, honeycomb stuck on top of the frames, or in between the frames, between the frames and the walls of the hives, and some crosswise—if you have used only starters in the brood frames, or no foundation at all. The honeycomb or burr-comb as it is called, should all be removed with your hive tool, or scraper, a covered tin can being provided to receive it as you take it out, keeping the can covered to prevent "robbers" from getting started. The propolis should be all scraped off and thrown away. Also clean all droppings from the bottom of the hive. The hive should be put into first-class shape for the spring honey flow and easy examination.

Your supers should have all been prepared during the winter when other work is slack; sections and foundation all in, ready to put on the hive. Watch the bees and see when they have settled down to steady work, which you will be able to recognize by the way they come and go from the hive. Take a look at the hive once in a while and when you see the upper part of the brood frames filled with nice, white, capped-over honey, and the hive running over with bees put on your supers, the extracting super next to the brood frame as the bees will enter this more readily than the comb honey super. Examine the super once in a while; if the honey is plentiful you will soon see bees in the first one.

Bee Bread and Drones

If you are working for the best white comb honey, watch when the honey appears in the extracting super and replace it with a comb-honey super, placing the extracting super on top of all the comb-honey supers. When the first comb-honey super is about two-thirds filled with sealed sections, raise it up and put an empty comb-honey super under it next to the brood chamber.

[illegible] the honey flow from [illegible] to get the comb [illegible] the sections [illegible] your extracting [illegible] the brood frame and [illegible] during the [illegible] in the [illegible]

Gigantic Rhubarb

EVER-BEARING Colossus is a new strain of rhubarb having the same general characteristics as the winter crimson rhubarb, excepting that it grows four times as large. The stems often weigh one pound and a quarter each. T. B. Wagner of Pasadena states that thirty pounds of rhubarb have been picked at one time from a single plant, or sixty full grown stems that weighed thirty pounds, or one-half pound per stem.

The new variety thrives luxuriantly all the year round. To get the best results, apply large quantities of stable manure and water freely. The seed is scarce and the price much higher than common varieties. This is undoubtedly the most profitable variety we have yet offered. This rhubarb is displayed at the market places in apple boxes, and the boxes are barely long enough to accommodate the large, thick stems that will average one-half pound each, often weighing more than a pound. It is remarkably early, bearing large stems the entire year.

Transplant rhubarb at any time when the roots are large enough. It requires a rich, sandy loam, well drained. Never flood the crown nor bury it with soil. Therefore plant it on ridges or on the sides of an irrigating ditch. Set the roots four feet apart.

Rhubarb does not grow well in the shade of large trees. In fields, plant the roots two feet apart, in rows, and the rows four feet apart, or 5400 plants to the acre, any time of the year.

Soap for Insects

SOAPS of most kinds are of value in solution as washes and as sprays in the control of certain noxious insects. Both hard and soft soaps are employed, and so-called whale-oil soaps, usually manufactured from fish oil, are of great value and much used. Among these are cresol soap and resin fish-oil soap. Such soap is usually prepared by dissolving 1 pound in 4 to 10 gallons of water. On some hardy plants a solution of 1 pound of soap to 2 gallons of water can be used, but this strength is harmful to delicate plants and must be used with caution. The best strength for ordinary plants is about 1 pound in 6 to 10 gallons of water, applied as a spray. It is of most value against plant-lice, minute leaf-bugs, leaf-hoppers, and thrips, and against some forms of small soft-bodied and sensitive insects and their young. Soaps possess no particular advantage, however, over nicotine sulphate or kerosene soap emulsion, but are easier to prepare than the latter.

Neutral soaps of the castile type are much used on plants grown under glass and as a means of checking the ravages of plant lice, thrips, red spiders, and some other forms of small insect pests. They are particularly valuable against many insects which obtain their food by suction.

Valuable Fig Orchard

E. NEWBY of Reedley, Fresno County, Cal., sold his fig orchard of forty acres, near that town, to A. S. Spaulding of Los Angeles for $30,000. This orchard long has been a showplace of the Reedley district. At one time it had a monopoly of this distinction, but in recent years it has been only one of many fig orchards there.

George C. Roeding says that Fresno must wake up and teach the world that "here in the central portion of the Golden State there is an empire worthy the attention of the man with the dollar."

DISSTON
SAWS AND TOOLS

You need a Disston Hand-Saw

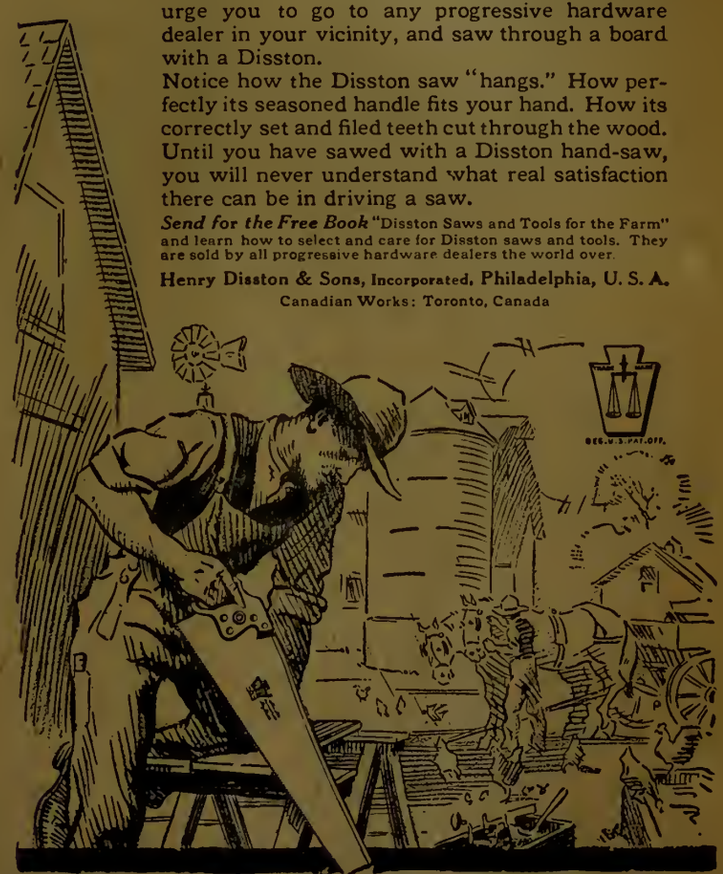
A good farmer has to be a good carpenter. A good carpenter must have good tools. You need a good hand-saw as much as you need a good plow. You will make no mistake if you buy a Disston hand-saw. It is the choice of more than 75 per cent of all carpenters. We have been making Disston hand-saws for 78 years, and have guaranteed every one of them perfect in material and workmanship.

Unless you are familiar with the smooth-cutting action of the well-tempered Disston blade, we urge you to go to any progressive hardware dealer in your vicinity, and saw through a board with a Disston.

Notice how the Disston saw "hangs." How perfectly its seasoned handle fits your hand. How its correctly set and filed teeth cut through the wood. Until you have sawed with a Disston hand-saw, you will never understand what real satisfaction there can be in driving a saw.

Send for the Free Book "Disston Saws and Tools for the Farm" and learn how to select and care for Disston saws and tools. They are sold by all progressive hardware dealers the world over.

Henry Disston & Sons, Incorporated, Philadelphia, U. S. A.
Canadian Works: Toronto, Canada



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CALL OR WRITE

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429 DAVIS STREET

Kearny 1542 or 1543. San Francisco.

A Pennsylvania Farmer Says Concerning Electric Motors on His Farm

"A one-horse power motor is located in the spring house for separating milk, churning butter, turning a grinding stone, etc.

"In the house, my wife has a ⅙-horse power motor for running a washing machine. This motor can be attached to any lamp socket.

"In the barn a 15-horse power motor mounted on a little truck may be moved to any part of the barn or barnyard for grinding feed, baling hay and threshing grain. By extending the cable we have used this motor 400 feet from the barn."

This letter suggests equally profitable installations around your house and barns. The General Electric Company manufactures all sizes of electric motors for farm use. Information will be gladly furnished by your lighting company or our nearest motor agency.

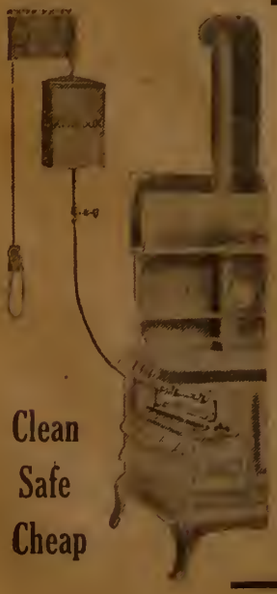
General Electric Company

Los Angeles Office: Corporation Bldg.

San Francisco Office Rialto Bldg.

6592

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.



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No Plumbers' Bills to Pay.

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Does not increase your insurance rate.

SEND FOR CATALOG

Pacific Kerodox Burner Co.
507 Market St., San Francisco, Cal.

Are Your Trees Hungry?

Well-Fed Orchards Are the Paying Ones.

By W. R. Mitchell.

VERY simple plants have very short life cycles.

From a single green plant cell as an individual plant to a full grown orange and walnut tree is a long range of plant growth and development.

Our little non-green yeast plants and bacteria are dependents and readily illustrate an important statement in biology—"cells, tissues, organs or powers, we do not use, we abuse, we lose."

Most of our lowly plants living and maturing in one year, we speak of as annuals; those in which it takes two years to mature seed, as turnips and carrots, are biennials; and all shrubs and trees are perennials.

In the life cycle and decay of herbs important food values as humus are readily obtained.

Decaying plants and animals in the soil enrich it for the living herbs, shrubs and trees. To feed our orange, walnut and other desirable orchards the proper organic foods as soil humus is very important; our tree "slaves" are often hungry and they cannot migrate, so if adaptation is not possible, they die.

Malnutrition in trees is observable to a good plant physiologist who knows how to interpret the symptoms and the wisdom of diagnosis precedes the endeavor to apply the necessity remedy.

Starvation of plants and animals, including people, ought to be and can be prevented; "balanced rations for efficiency" is a fine problem for intelligent practice. Are many of our valuable trees properly fed? Let us give more attention to the roots, for roots as well as shoots must be considered for successful plant growth.

Fruits and seeds in reproducing other plants, are also important for animal foods. These facts make many plants very valuable We can feed them better and appropriate many herb cover crops for humus. Are we wise when such knowledge is not used to the advantage of food production? Well fed trees often make large profits. Soil fertility, crop rotation, drainage, irrigation and cultivation are important factors.

Nutrition and reproduction are fundamental in the life history of plants and animals, and a satisfied life cycle is an interesting observation. Seed production is a climax of plant attainment, seeds and fruits constructed for "long distance from home" distribution and successful planting for healthful new offspring is of interest to students of plants.

Adaptations and successful migrations are now attracting attention Care of and provision for offspring of both plants and animals are attractive and really humanizing subjects of biological study.

Only big folks have true sympathy for the underfed and misfits, among our cultivated plants and domesticated animals. Our fine trees have certainly responded to our kindliness; what fine fruits as apples, peaches, oranges and others have repaid us. How anxious some of us are for the welfare of our orchards as to their pests; even antiseptic tree surgery is practiced.

Surely we will not neglect to give more attention to some of our underfed fine orchards

We will soon "tile drain our land for subirrigation, subfertilization and subacration" and the root systems of our trees will be more favorably located.

Our surface irrigated orchards have surface soil root systems and when the proper subdrainage with tile is in practice as well as subirrigation through the same tile the root systems will get their soil foods from below

Deep farming must become more common. The tap roots are important for deep, new soil foods, earthworms and deep rooted plants have much importance in future soil fertility

Green manure completely plowed under to five or six inches makes a fine sponge for holding water and dry farming practice becomes effective Subfertilization and subacration are easily accomplished through the same tile and we may yet see more well-fed orchards

How I Drain Wet Spots

WET spots are a source of annoyance to the owners of farms because wet ground is useless and frequently interferes with plowing, cultivating and other farm work.

I recently tried an experiment in drainage on my farm. There was a place where the water stood continuously. It was deeper in spring after the snow had thawed and after heavy rains than at other seasons of the year, but it was never altogether dry.

I bored a hole with a four-inch soil auger, carefully noting the type of soil that came off the spirals. After getting down about eight feet, I discovered that I had come to a layer of sand. That was what I was looking for because this method of drainage will not work unless a stratum of sand or gravel can be found at a depth that can be reached with an auger.

In the bore hole, I placed six pounds of dynamite which was not tamped in. The shot broke up the hardpan between the surface and the layer of sand and notwithstanding it has now been over a year since the blasting was done, no water has stood on this spot since.

It happened to be a type of soil that would not run together readily after being broken up. If it had been one of the sticky clay types, it would have been necessary to fill the hole that was blasted out with gravel, cinders, broken stone or some similar material to keep the drain open.—F. E. C.

New Wrinkles

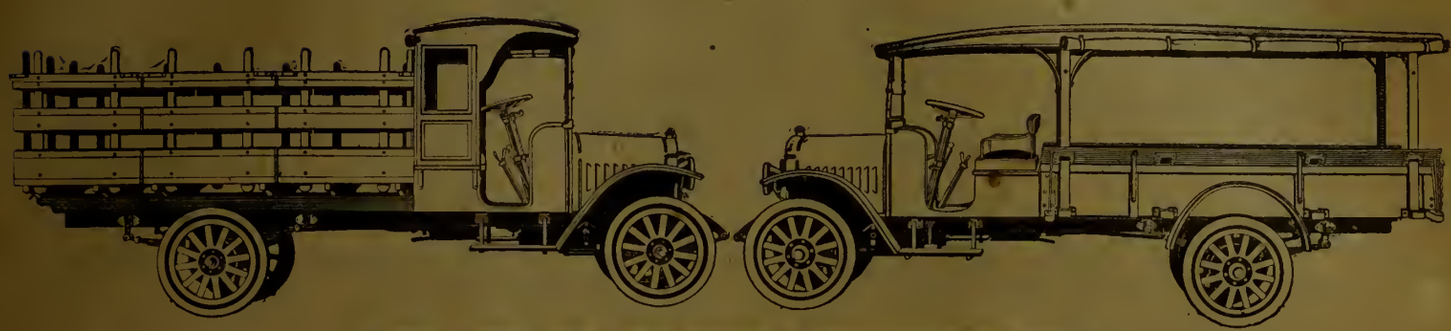
(Continued from Page 11)

of us had small machines of very limited capacity, but the one we selected after looking them all over, was of good size and would turn out enough feed in a day to supply us for a week.

We have our machine set up and going now, operated by electricity, and it has greatly reduced our ground feed expense.

In these days of high priced machinery, would it not be well for small ranchers to club together in the way more than is done at present? Of course, it would not be a good plan for a large ranch, but for a number of small ones it might be just the thing. Why not have a community tractor, a community separator and a community hay baler? The only thing against the idea is that all the members of the club that had bought the machine might want to use it at the same time. But they could plan to alternate their work so that all would get an opportunity to use the machine in rotation without [illegible] A. J. B.

More Brains than Metal are Used in Building this



MAXWELL TRUCK

This truck costs little more than a first class team, wagon and harness. Costs less when you figure up-keep. Eats only when it works. Requires one-twenty-fifth the care and attention horses do. Travels the 7 or 12 or 16 miles to market, under load, in one-fourth the time.

The farm hand who formerly took all day to drive to mill with a load of grain can now go and return in two hours.

Here is a truck with all the features of $5000 trucks, and sold under the same guarantee. Worm drive. Electric lights and generator. 10-foot loading space. Gas consumption, 16 miles to every gallon. A tire miser. Mechanical trouble practically unknown. Repair bills are too low to mention.

This Maxwell is built for the farm. Weighs 2500 pounds. Goes faster than heavier and more expensive trucks and goes where they daren't follow.

6600 Maxwell trucks are in service. 1100 on farms. Service records show a verdict of 99.6% perfect based on all the trucks now in use. You'll find no mechanical faults in the Maxwell. A safe investment and a paying one.

You save $400 the day you buy this Maxwell truck, for its price is $1085. And $1085 is $400 less than any other truck of similar capacity on the market.

$1085 Chassis only, f. o. b. Detroit. Electric lights. Electric generator. Worm drive. 10-foot loading space. 2500 pounds. 16 miles on a gallon of gas.

MAXWELL MOTOR SALES CORPORATION

Detroit, Mich. San Francisco, Cal.

EDITORIAL DEPARTMENT OF ORCHARD AND FARM

Bailey Millard, Editor

Sowing Sedition

WHEN we read the solemn warning words of ex-President Taft, printed in the next column, we realize their absolute truth.

There are agencies at work in this country at this very moment that would turn the entire nation over to Teutonic dominance and control at the drop of the hat if they possibly could contrive to do so.

This is apparent by the reports published every day in our loyal newspapers telling of insidious schemes for the discouragement of our patriotic people—deep laid plans to overthrow the influence of our government at home, to make labor discontented and rebellious, to make the farmer feel that it is useless for him to join in the effort of the food administration to produce larger crops on the ground that the war cannot possibly be won, or that it is won already, or that the best we can hope for is a stalemate.

In the Raemakers cartoon produced above the traitor is shown as a husbandman going forth sowing seeds of treason and cowardice. It is a strong cartoon and it aptly applies to the situation in this country today, where German propaganda is being extended to every cross-roads and fence corner in the vain hope of stirring up internecine strife or, at the least, to throw doubt into the hearts of the people.

But the farmer—the real, true, patriotic farmer—the man who sprung from good old New England stock and whose forefathers fought at Lexington and Bunker Hill—will not be deceived by this propaganda nor by the casual utterances of pacifists or other pro-Germans. He will not abate for one moment his determined intention of aiding in every way possible the enormous food production for which the government is calling.

The farmers of the Pacific Coast made a noble record in 1917, but that record must be surpassed this year. As for California, Governor Stephens is right when he said in his message to the readers of Orchard and Farm last month that there was only one place for this State and that was in the front rank.

President Wilson has put the matter of food production in 1918 right up to the farmers. In referring to what was done last year by way of increased crops he said in his message to the recent farmers' convention at Urbana, Ills.:

"I ought to say to you that it is not only necessary that these achievements should be repeated, but that they should be exceeded. I know what this advice involves. It involves not only labor but sacrifice, the painstaking application of every bit of scientific knowledge and every tested practice that is available. It means the utmost economy, even to the point where the pinch comes. It means the kind of concentration and self-sacrifice which is involved in the field of battle itself, where the object always looms greater than the individual. And yet the Government will help, and help in every way that is possible. The impression which prevails in some quarters that while the Government has sought to fix the prices of foodstuffs, it has not sought to fix other prices which determine the expenses of the farmer, is a mistaken one. As a matter of fact, the Government has actively and successfully regulated the prices of many fundamental materials underlying all the industries of the country, and has regulated them not only for the purchases of the Government but also for the purchases of the general public, and I have every reason to believe that the Congress will extend the powers of the Government in this important, and even essential, matter so that the tendency to profiteering which is showing itself in too many quarters may be effectively checked. In fixing the prices of foodstuffs the Government has sincerely tried to keep the interests of the farmer as much in mind as the interests of the communities which are to be served. but it is serving mankind as well as the farmer, and everything in these times of war takes on the rigid aspect of duty."

"The rigid aspect of duty." Is there anyone in these times who cannot understand that phrase? Or are we going to say that just because we didn't get exactly the price we anticipated for our potatoes or our barley last season that we are not going to increase our efforts this year?

When farmers realize what capitalists are giving up in the way of increased income tax, when they know what labor is giving up in the way of payment of vastly increased food prices and greater cost of clothing and material of all kinds, they will not need to be told that they too must make sacrifices—that they must work harder and produce more and more.

As for the traitorous crew, we know that the farmer will turn a deaf ear to all their insidious talk, although that talk is going the rounds in a way that is intended to intimidate patriotic folk. We were told the other day of a moving picture exhibitor who had received such hints from certain of his German patrons that he had decided not to put on a film that had met with their disapproval.

"I didn't run the picture," said the exhibitor, "for I didn't want to offend my German patrons."

Think of it! Didn't want to offend Germans. Supposing that our soldier boys who are dropping bombs on the camps of the Huns in France should hesitate because they didn't want to offend the Kaiser's men! Suppose that those same Teutonic bayonets that impaled the Belgian babies before the eyes of their frenzied mothers were thrust in the direction of one of our valiant men, would he turn aside for fear of offense to those butchers? No, he would meet them face to face and make a stout counter-thrust.

Why should we at home be less courageous than the men we have sent to France to fight the bitterest enemies of democracy and other high ideals that now exist upon this planet?

A Sower That Is Pretty Busy in These Days

The time is coming and we might as well prepare to face it when the seeds of discontent will be sown, when we meet disaster, when with hellish malignity the Germans will suggest for fools among us a trap of inconclusive peace. We must have our people educated to stand up against that and teach the Germans that a moral people like us will die sooner than give up our high ideals. We ask no territory, no money, no indemnity, no additional power. We are fighting for humanity, for the most sacred cause since history began.—William Howard Taft to the Congress of National Service.

Business Is Better

IT MUST be encouraging to our rural readers to note the progress of business in these war times. In nearly every line except real estate it was better in 1917 than in 1916 and this year will be a vast improvement on last.

If you have any reason to doubt this just cast your eye over the recently published report of the Twelfth Federal Reserve district and note the percentages of increase in deposits, loans and discounts over the year 1916.

Deposits

City	1917	Per Ct. Inc.
Los Angeles	$ 97,570,000	8.3
San Francisco	280,837,000	16.3
Ogden	9,721,000	2.9
Salt Lake City	28,452,000	12.0
Portland	55,893,000	4.3
Seattle	66,976,000	30.9
Spokane	31,583,000	11.2
Tacoma	11,602,000	34.5
Totals	$582,634,000	13.1

Loans and Discounts

City	1917	Per Ct. Inc.
Los Angeles	$ 69,846,000	13.2
San Francisco	186,162,000	15.6
Ogden	6,703,000	29.9
Salt Lake City	19,956,000	15.3
Portland	35,375,000	10.5
Seattle	38,176,000	33.4
Spokane	20,076,000	10.0
Tacoma	6,397,000	24.2
Totals	$382,691,000	16.2

We Point With Pride

WE point with pride to the records that are being made by Orchard and Farm.

It has been one of the greatest agencies in helping to settle the bare acres of this coast. Its influence was felt when the California Legislature was hesitating as to what to do with the Breed bill, by which the State was enabled to purchase 10,000 acres of land to make a demonstration—the first in this country—of the Australian system of land settlement. The measure was adopted largely because of the appeal made by the editor of Orchard and Farm.

We point with pride to the fact that the great work of Luther Burbank, so valuable in this war time, has been set forth by the plant wizard himself in Orchard and Farm and in no other publication.

Also it is a matter of pride that this paper has been able to put a damper upon the efforts of the capitalistic crew to let down the bars to Chinese immigration to work on the farms when there were sufficient laborers already if all were utilized.

Orchard and Farm is the official organ of the Grange, and its influence in the matter of opposing Chinese immigration has had so great an effect upon the patrons of husbandry that they voted it down by an overwhelming majority.

Does the business public recognize the worth of Orchard and Farm? Well, rather!

See how this paper has grown in circulation and in advertising patronage.

New subscriptions came in during the past month at the rate of over 100 a day.

Our February number carried the largest amount of advertising in the history of the paper.

March showed an even greater increase in advertising business for this publication.

And April—well, one has but to glance over the pages of this great number to see that both in advertising and reading matter it surpasses in volume and in quality that of the record-breaking February and March issues.

But material progress is not everything. We want to be able to realize that in intellectual, mental and spiritual uplift we are doing something to aid our great circle of rural readers.

As a means to this end we have called to our aid the foremost writers of the day, among them Edwin Markham whose poetic and prose contributions are the best of their kind to be published anywhere.

And lastly we are doing our best to keep alive in the breasts of our readers that noble fire of patriotism which must not be permitted to burn low in these times, when our government is engaged in the most noble and most unselfish enterprise in which men ever shouldered arms.

My Native Land

BREATHES there a man with soul so dead,
Who never to himself hath said,
This is my own, my native land?
Whose heart hath ne'er within him burn'd
As home his footsteps he hath turn'd
From wandering on a foreign strand!
If such there breathe, go, mark him well;
For him no minstrel raptures swell;
High though his titles, proud his name,
Boundless his wealth as wish can claim;
Despite those titles, power and pelf,
The wretch, concentered all in self,
Living, shall forfeit fair renown,
And, doubly dying, shall go down
To the vile dust from whence he sprung,
Unwept, unhonor'd and unsung.

—Sir Walter Scott

Turnips Turned Down

STRANGE to say the turnip has come into disrepute in California, though in the northern Pa- States it is still grown here and there.

Strange, and yet it is not altogether strange. For when one considers the turnip history of California one must confess that when the turnip was given its innings it did not make good.

Here is the story of why the turnip was turned down:

Up in Humboldt and Mendocino counties the stockmen thought they had a great idea. Why not feed turnips to cattle and make 'em good and fat? Why not run up heavy milk records by setting Bossy's table with big dishes of turnips, rutabagas and kohl rabis?

Great! The turnip's true home is up there on the damp coast, where there is plenty of rain and fog.

So all the dairymen got busy and planted turnips. It was figured out that if you planted them in March or April up that way they would be ready to feed to the cows in July and August.

The Dairymen's Delight

And they were ready all right! Great, big, white flat Dutch boys, meaty yellow 'bagas, wonderful, bulbous kohls, big as your head and bigger! No trouble growing them, no trouble feeding them. Why, the cows tore over the fences and pawed the ground and dug up the succulent roots.

The dairymen were delighted. They had found a cheap and easily grown feed that was going to raise the milk score all up and down the line.

It did. Nothing like it so far as milk went. Bossy's udders swelled like balloons and the milk squirted from them all over the landscape as she went trotting home at night.

But, ah! When the returns came in from the dairymen's customers—that was a different story.

"What's the matter with your milk? It tates as if you'd soaked cucumbers in it." "It isn't fit for the pigs." Such were the remarks of the said customers.

The dairymen couldn't understand. Perhaps the cows had gotten hold of some skunk cabbage or something. They went on feeding and milking. This was only a passing phase of the game, thought they.

Yes, It Was Sad!

But they had a few more thinks coming. While they were whistling at their work and pouring huge pails full of the pure white lacteal fluid into the cans trouble was brewing.

And of a sudden the creameries, by a concerted move, shut down on the milk.

What was the matter? Turnips. Had your cows something else. We understand for the flavor of that milk. So the turnip was turned down, never more to be fed to the cows of Humboldt and Mendocino.

It fell in very good favor in other parts of California. Professor Wickson says it does not endure very well under warmer heat and drought and becomes a prey to fungus and un-

The Orchard and Farm would like to see some other turnipwise something that has made the grade.

Mr. Gardner: If [illegible] good [illegible] t

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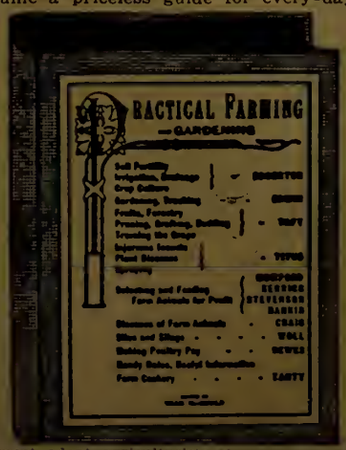

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Tractor Problems

Is your tractor giving you any trouble? If so, write to Tractor Editor, Orchard and Farm, Examiner Building, Los Angeles, and a reply will be made to you from our expert. If you have no objection both questions and answers will be printed in this department.—The Editor.

Best Oil for a Tractor

WHAT is the best kind of oil to use on a tractor? Would you use the same kind as that employed for an automobile?—E. S. M., Los Angeles.

There is probably more hocus-pocus about tractor and automobile oils than about anything connected with a gasoline engine. Thorough tests made by a number of purchasing agents not long ago in this State proved that some of the cheapest oils had as good lubricating qualities as the high-priced ones. Still there is much difference of opinion on this point. Generally speaking a tractor will require heavier oil than an automobile. There is considerable perference shown among some experts for a paraffine base oil One of them recently wrote to Orchard and Farm:

"If a paraffine base oil were to cost three times what it really does it would be economy to use that oil, for these reasons: It does not thin down under the heat as does an asphaltum base oil, therefore, it keeps your machine cooler, giving more power, by keeping the bearings properly separated, eliminating friction and preventing the bearings from burning out, and it adds greatly to the compression because it has body enough to form the necessary film between the piston rings and the walls of the cylinder."

Life of a Tractor

TRACTORS have not been in use for many years and nobody really knows how long they will last. In your opinion, what is the best make of medium-sized machine and what is its probable life?—P. O'C., Brawley, Cal.

You will never get us committed to any expression of choice in the matter of tractors, there are so many good ones of all makes and sizes. As to the life of a machine of this kind that question may be answered by a saying that either an automobile or a tractor will last many years if the proper care is given to it. We knew one man near Fresno who had three tractors that he smashed up on hardpan plowing in one season. He says that mule teams beat the tractor every time. Of course he is wrong.

If you are a pretty fair mechanic and never subject your tractor to any undue strain or hard knocks there is no reason why your machine should not last fifteen or twenty years, always provided you are able to replace broken parts.

One of the greatest factors in shortening the life of a tractor is rust. If you have sense enough to go in when it rains and keep your tractor in the shed at the same time you need have little to fear from rust, provided always that you use plenty of kerosene to clean the mechanism occasionally.

Plowing and Harrowing

PLEASE let me know, as an admiring reader of Orchard and Farm, what is the best method of using a tractor in plowing and harrowing.—J. L. McM., Turlock, Cal.

There is no best method. There are several very good methods, one of them is that employed by a rancher who is quite successful and who has given us the following as his general practice In plowing he runs off the head lands and leaves plenty of room at each end, plowing until he has the same distance from the fence on each side as on each end; then plowing around the field just to suit one's self, and with reference to whether it is desired to throw the earth to or from the fence.

He hitches disk harrows to the engine and drag harrows behind them and disks and harrows all at once, dragging three double disks and the drags to cover the same space, making a very fine seedbed for corn or any other crop, as the ground has been fall-plowed and there are no clods. He hitches the center disk right to the engine, then attaches a long pole to the rear of the engine and another pole of the same length each having a slot a foot long in each end. He bolts that second pole to the center disk, then hooks a chain to the first pole on each end and extends it back to the second pole with the slot in, puts the chain through the slots, and hooks to the disk Then he hitches the drag harrows behind the two rear disks and is ready to go.

Troubles in Starting

I BOUGHT a one-cylinder Samson tractor about a year ago It worked about as good as new when I got it started, but when the mornings are cold, I have trouble getting it started. Can you help me out?—E T. W., Woodland, Cal.

There can be one of twenty different reasons for any engine being hard to start on a cold morning and all that can be done without the personal inspection of your tractor, can be to offer these suggestions:

The unit sparker becomes rather slow to operate at times and requires a little gasoline to clean it out and possibly adjustment of platinum points. The points on the spark plug may be too far apart.

It is possible you need new piston rings or need to have the valves ground, unless this has received attention during the last six months.

Moisture gathers in a cylinder when allowed to remain over night. This can be eliminated largely by closing the shut-off valve, underneath the tank, in the evening just before stopping the motor. After this valve has been shut, allow the engine to run until it has used all the distillate remaining in the carburetor In the morning you can then fill the carburetor with gasoline and with a little prime of gasoline it should start easily —Manufacturer's reply.

Safe Load for Machine

WHAT is a safe number of plows to use on a ten-horsepower tractor, plowing [illegible] inches deep and using fourteen-bottoms in clover sod?—R D., Los Angeles.

The draft of each plow will be [illegible] pounds, so that while you could use possibly three plows, two would be a safe load for your engine.

Avoid overloading a tractor. It is sure to result in permanent injury. It is a much wiser policy to work the tractor up to capacity for a letter order, and then take advantage of its ability to work long days or during night. More work will be done in this method and you [illegible] more years of satisfactory service.

New Tillage Plan

DURING the past few years a number of Pacific Coast farmers have experimented with drainage systems, chiefly buried tile, of course, to lower the water level, as a means of saving crops from drouth. At first blush the proposition sounds like an absurdity.

"What," says the incredulous, "put the water down lower yet to save crops from drying up when the water level is already beyond their reach?"

Even so; absurd as it may seem, the point is this, that ordinarily the water level is lowered while the corn or other crop is developing its root system. Now, it is amazing how far down into the ground various crops will go for water, providing they can do so during the earlier period of growth. If, however, the root system is once fully established and then the water continues, by reason of lack of rainfall, to continue going down to a lower level, we might just as well bid au revoir to the crop.

On the other hand, if the water level is placed low early in the season, the plants will send their roots down to surprising depths and reach a low-water level before their roots system is completed. This lower level may be obtained, of course, by the use of tile, or sometimes otherwise, and it may be made low enough so that even a quite severe drouth would not send the water line any lower.

Once the root system is down to that established water level, a dry season has very little effect in most cases, and none at all in some.

It is safe to say that with humus put into the soil with crops turned in, using the grains and vetch on the light soils and perhaps cowhorn turnips or something similar on heavy clay soils, and an artificially lowered water level, almost any crop would be safe in the driest kind of year if thorough cultivation is kept up and a genuine dust mulch maintained.

On that point of cultivation a word should be said. There is no fixed rule for cultivation. Every farmer must use his own judgment. Very light, sandy soils can be cultivated or worked too much and a loss of some moisture result, and it is also true that clay and heavy soils should be worked according to the weather conditions and according to the moisture present. There is not much danger of overdoing the working of heavy soils.—Robert G. Doubleday, Ballow, Wash.

Tulare Tomatoes

(Continued from Page 7)

The cannery manager stated that the field in question was the most seriously injured of any he had seen, but the two others near by were hard hit also and tomato receipts at the cannery ran under half what it was figured would be secured from the acreage. No doubtless the worms were very bad in other parts of the county. To persons who asked my opinion for extensive planting for 1918, I have stated as follows, merely as opinion, not as scientific fact. If tomato prices and conditions so highly satisfactory this year, they doubtless would be that very satisfactory the next year, and the blame should be placed mainly on general conditions and unusual conditions.

In other parts of the State tomatoes proved in fine last year. They were late and late, though previously they were wonderful producers of tomatoes.

[illegible] reach the [illegible]

Pheasant Raising

By Mrs. C. A. Richey,
No 616 North Benton Way, Los Angeles.

THE Chinese ringneck pheasant is becoming known through California for its value as a table delicacy, and this is as it should be, for it is remarkably hardy after a certain age, and also very prolific. One hen will lay on an average one hundred eggs per season, and usually they hatch well. With a pen of four to six hens and a male, which is the correct proportion for breeding, one should be able to raise at least 200 to 300 young that would be ready for the market in four or five months.

The price in Los Angeles this winter was $2.75 to $5 a pair. A pair means two birds, regardless of sex when sold for the table. Wholesale, they were $15 to $20 dollars a dozen. At the present price of feed this would beat raising broilers.

The ringneck pheasant hen starts to lay the beginning of April and continues until the end of August, sometimes into September.

Hatching the Eggs

The eggs should be cared for in much the same way as chicken's—kept in an even temperature as possible and turned every day or two. It is best to keep them in a box of clean bran and when the box is full tie it and the eggs can be turned back and forth without handling separately. They will keep fertile this way for two or three weeks.

Pheasant hens do not set in captivity and rarely show any inclination to do so. Foster mothers are used for the hatching. Cochin and silkie bantams make the best mothers, as their plumage is thick and they are reliable and gentle, which is most necessary with pheasant raising as the young birds are very nervous and wild.

Ten eggs are enough to put under a bantam, but one can set a small hen on twenty and divide them among the bantams when hatched. Some advise putting them into an incubator when the eggs start to chip until they are all out.

At the end of twenty-four hours after hatching the chicks should be put back with the bantam hens. Always leave two or three eggs under the hens to keep them from leaving the nest. The nests should be in boxes twelve inches square and set on the ground without a bottom, with some dried grass or fine soft hay for the lining. The eggs take twenty-three days to hatch.

What to Feed the Chicks

Thirty-six hours after hatching they must have their first feed. Curdled milk is fine and hard-boiled eggs, chopped shell and all, with onion tops, lettuce, toasted bread crumbs and a little grit, rolled oats and later on little chick feed. Feed four times a day for the first ten days. After that three is sufficient. Feed only what they will clean up in a few minutes, over-feeding is most disastrous.

What is considered the best food by the expert pheasant raisers is the larvae of the common blue bottle fly, or maggots. When you feed this do not feed anything but chick feed and greens. The way to make maggots is to take a piece of liver, heart, fish or anything in the way of meat, put in some place where the flies can blow it. The maggots will soon appear.

Care of Old Birds

The old birds will eat anything you feed to the chickens. With a little observation one can soon learn the proper treatment and care.

Pheasants need plenty of fresh green food. Keep the lice off the young by keeping them off the setting hens.

Anyone who has raised turkeys need not be afraid to try pheasants. The care is very similar. The young are easily affected by dampness. In damp weather put a little pepper in the feed

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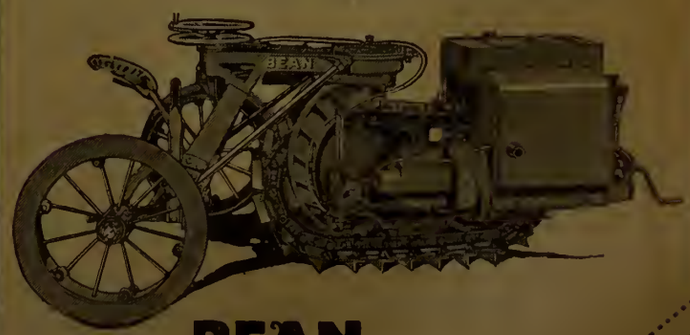

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Farm Philosophy

By Uncle Bill

WE'RE getting along pretty well down on the old ranch in spite of dry weather the first part of the winter. Some of the cattle had to be killed and sold, as we had nothing to feed them on, and the hills were brown as tanbark. We don't know yet whether the barley is going to sprout or not or whether the beans will be half a crop, but there's one thing dead sure, and that is that Infinite Goodness never failed us yet in the long run, and if you catch your Uncle Bill working his face full of wrinkles over the situation jest let him know and he'll give you the best heifer calf on the place.

A lot of folks are predicting all kinds of calamitous things that are going to happen this year, but they don't know any more what's going to happen than a hog does about Heaven. I just dope it out this way: The Almighty has ruled this country ever since the year 1776 and probably a long time before that, and you take one year with another and we have got along tolerably well.

* * *

A lot of sharks are going to get rich out of the war—they always do, and you can hardly help it. Old J. P. Morgan got his start on Government contracts in the rebellion, and there were many more. Some men helped themselves to big wads of cash in the Spanish war. But what of that? How much did they get ahead by it? I tell my boy Sam every little while not to be too shrewd in trying to get the best of everybody, for the shark's game is a thieving game, and the thief steals mostly from himself. He steals his own honor first, and that's the worst thing he can rob himself of. And you can't tell me that any one of those wall Street pirates can settle down into a church pew of a Sunday and silence his conscience by devout attention to the sermon or even by getting up and singing his head off with the congregation. If he could he would be in a worse way than a penitent thief in the county jail. Show me a man who can gloss over his thieveries with religion and really feel good about them and I'll show you the most pitiable man alive.

* * *

I would rather sit here in the corner in my shirtsleeves looking at Cynthia over there, darning my brown socks with white wool because she hasn't any other color, than be the biggest profiteer alive. I want to earn my money. I want to be able to visit my old mother's grave with the feeling in my heart that I wouldn't be afraid to have her come alive and ask me where I got the money to pay for that tombstone for her, which I'm ashamed to say I did only last year, for it was the first time I seemed to have any spare cash. That's the way I want to feel. And I want to be able to wake up in the night and to think over what I've done during the past week and to know that not a single man, woman or child was made worse off through anything that I've done.

I don't want the man that I sold my alfalfa to last Saturday to come back to me and say, "What did you fill up that hay with dobe chunks for? I ain't paying for real estate when I buy alfalfa."

And I don't want the man I traded horses with last Monday calling me up on the telephone and telling me that I stung him with a runaway horse that nearly killed his wife.

* * *

I see by the paper that Charley Schwab says this country and the whole world are going to be run by the working people after the war. Well, what of it? I'd rather take a chance with a good, honest blacksmith, or carpenter, or farmer in some high office than I would with a man who gets himself elected United States Senator so that he can swing the Government around to helping him in his private business.

You can't help people very much anyway. Did you ever notice that the more you do for a man in the dependent class the more he'll expect of you? It isn't good logic, but that's how it works out. You'd think he'd go to somebody else and even up his begging or borrowing. But no; if you've favored him once he's got a claim on you and he'll come around again and again and keep on coming until you refuse him the dollar.

* * *

I said something about profiteering. You would think, to read some of the papers, that the farmers were in that class. Why, bless you, the bigger the prices a farmer gets for his crops—and we did pretty well last year—the more he's got to divvy up with the man that sells machines or that writes out insurance or that holds the mortgage over his head. And a lot of us are very far from rolling in wealth these times. The middleman came down harder than ever on us as soon as he found out prices were going to be high. One of our neighbors sent a carload of onions to the city and after waiting thirty days got back a check for $49. The commission man said the onions reached him in bad shape, but they were all right when they were put into the car and we're all satisfied that he lied, though nothing can be done about it.

The true profiteers are the men like that chap up in Seattle that got a Government contract to build four ships for $490,000 apiece and turned over his contract to another man for $433,000 apiece and pocketed $268,000 without turning a hand.

When my neighbor Jim Doble read about that he said to me, "Bill, what's the use? You and me ain't got much sense or we'd find an easier way of making money than grubbing in this old 'dobe."

I said to him, "What good will that $268,000 do that man? He hasn't earned it. You can't get any good out of money unless you earn it. Do you suppose Rockefeller's wealth means any more to him than what I've got means to me? Not so much. I'd rather be a free, roving tramp than a Rockefeller, anyway. A rich man carries too heavy a pair of blankets. He's like the horse I had last year that got into the granary and ate all the barley he could stuff. It laid him out, and a lot of money will lay any man out. How will he take it with him? I haven't heard about anybody making shrouds with pockets in them, and even if they did who'd want to have them filled up with greenbacks or gold?"

* * *

Then Jim got to talking about lack of help on the farm and that we ought to bring in a lot of Chinamen to do the work. I didn't agree with him there either. I told him I believed that the Government ought to round up all the city loafers and train them for farm work, just as they trained soldiers, and march them out to the farms to plough the land and harvest the crops. One white man, I said, could do the work of three Chinamen or Japs, and if he didn't do it things ought to be fixed so he could be sent to a big prison camp where he'd be made to work on the road at the point of a bayonet.

We had quite an argument, and I don't know that we settled anything but arguments kind of limber up a man's thinking machine sometimes—that is, unless it's arguments on religion, and that's where I draw the line.

Care of Machinery

MANY times has Orchard and Farm urged farmers to keep their machinery under cover and not to let it rust, but there never was a time when more care was needed than right now when all kinds of farm machines are so high-priced and so difficult in certain cases to secure.

The use of a badly worn or rusty machine results in inferior work and is almost certain to cause a great loss of time due to break-downs when there is the greatest need for the work to advance rapidly. The solution of this difficulty is: Order repairs early, anticipate the break-down and order a repair for the weak part which will most certainly give way soon, or buy a new machine to replace the old one which is really unfit for further profitable use.

All old and useless machinery should be sold as junk at the earliest opportunity. Before selling as junk, however, remove all bolts and screws of various sorts. Very frequently a bolt is lost on a machine in the field. No old bolts are at hand, the village hardware store is several miles distant, the machine is run without the bolt and a break-down results. With an assortment of old bolts this could be prevented. Almost as serious is the use of a bolt of too small size. A bolt of too small diameter breaks at the time when it is most needed. It never does its real duty, since it allows too much play of the parts. If a bolt is too long this can be remedied by bushing up with washers or old nuts of a larger size and the strength only very slightly impaired.

There may be other parts of the old machine worth keeping for repair purposes.—E. R. Gross.

German Oil-Saving Rules

THESE methods of saving lubricating oils are posted in the machine shops of Germany:

Use only closed oil cans, with spouts that will deliver drops, or at most only a thin stream.

Use all lubricating apparatus strictly according to instructions and put the oil only where it will actually lubricate. If a machine has automatic lubricators, shut off the supply while machine is standing.

Do not use cylinder oil on shafting or elsewhere when cheaper oil will answer.

Keep all rubbing surfaces in good condition. Rough surfaces and too tight boxes consume more oil. Worn and leaky bearings waste oil.

Always use drip pans, and arrange to filter and cleanse the oil so caught. It is as good as new.

Collect all greasy waste and wiping rags, so that the oil may be recovered. Never burn them.

Be careful about using lubricating oil for cooling a bearing. Water will do as well.

Be careful about using oil for cleaning and polishing. Never clean the machinery with oil. A greasy cloth will do as well.

Notwithstanding the many adverse influences affecting the dairy interests, the financial condition of the Jersey Cattle Club was a satisfactory as it is now. The investment $5,800.00 in bonds of City and State of New York, $15,000.00 Liberty Bonds, [illegible] value of $140,- [illegible] balance (Oct. [illegible]) [illegible] total [illegible]

You Feed The World

And to deliver on this big contract you need the car more than ever.

AND it is important that the car be equipped with the tires that keep it going steadily, the year through at lowest upkeep cost. With Firestone equipment it is practically certain that your car will carry you wherever the work calls. They will get you there in comfort and on time, regardless of road and weather.

FUEL-SAVING WITH FIRESTONE CORD TIRES. The added size, with extreme flexibility of Firestone Cord Tires, means remarkable economy of fuel. There is easier, quicker response, an activity that supplements the motor power and gives the long coast with engine idle. This flexibility means, also, shocks absorbed, stone bruise and other injury avoided, longer tire life and they give road grip that means safe and confident travel.

FURTHER IMPROVED FIRESTONE FABRIC TIRES. Your car should have the benefit of the Firestone mileage features, the tougher, thicker tread, the added cushion stock and rubber between fabric layers. All these advantages increase resiliency and strength, giving you greatest comfort and longest wear. While doing your best in every hour of a long working day see that you have the most helpful facilities possible. In tires that means Firestone. Ask your dealer.

FIRESTONE TIRE & RUBBER CO., Akron, O., Branches and Dealers Everywhere

Firestone Tires

Lower Prices
on Galvanized Surface Irrigation Pipe, Well Casing and other supplies. Write now for New Price List.
American Steel Pipe & Tank Co.
354-56 Pacific Electric Bldg.,
Los Angeles, Cal.

AMERICAN SURFACE PIPE

REDWOOD TANKS

A tank, 5x2, $9; a tank, 7.4x4, 1000 gal., $23; a tank, 8x5, 1500 gal., $31; a tank, 5x4, 500 gal., $18. Tanks in stock up to 10,000 gallons. Thirty-five years in this business in Stockton. Try my improved non-shrinkable tank. Reference, Farmers' and Merchants' Bank, Stockton. I cut out the agent. Phone 2957
R. F. WILSON, STOCKTON, CAL.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand.

Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes LEAVING NO ASH SEND FOR ILLUSTRATED BOOKLET also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.,
624 California St. San Francisco, Cal.

ANTS
SCHRADER'S
Ant Destroyer—is slow acting—does not kill instantly, but gets the nest as well as the parent. Does not lose strength. Positively non-poisonous—no danger to children, house pets or foodstuffs. Send 6c for trial can. Ask your neighbor. She uses it. At your dealer. Accept no substitute. Write Schrader Chemical Co., Dept. O, 19 to 25 Minna St., San Francisco, Cal.

BAGS For ALL PURPOSES
New and second-hand. Every bag thoroughly inspected before shipping. Bags for grain, potatoes, seeds, rice, onions, beans, etc. Whether buying or selling, communicate with us.
SPEYER BAG CO.
869-873 Folsom St., San Francisco.

WATERLOO BOY TRACTOR

A 12-25 two-speed, one-man Tractor. Big Power Big Service, Big Value. Low Operating and Upkeep Costs for Field, Orchard and Road Service. Catalogue on Application.
W. L. CLEVELAND CO.,
208 North Los Angeles St.
Los Angeles, Cal.

Ask Your Dealer for
EL DORADO COCOANUT OIL CAKE
for Horses, Milch Cows, Chickens, Young Pigs and Hogs. Cheapest feed in the market today. If your dealer doesn't carry it, address
EL DORADO OIL WORKS,
433 California St., San Francisco.

THE "BOSS" TREE PROTECTOR

Made of Yucca Palm
Is cheap, durable and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frosts, sunburn, grasshoppers or dry winds. Can be easily removed, will last for years. Send for samples.
Ask your nurseryman for them.

PRICES

	Per 1000
10 in. long, 7 in. wide	$10.00
12 in. long, 7 in. wide	11.00
14 in. long, 7 in. wide	12.00
16 in. long, 7 in. wide	13.50
18 in. long, 7 in. wide	15.00
24 in. long, 7 in. wide	18.00
30 in. long, 7 in. wide	21.00

YUCCA MANUFACTURING CO.,
1380 Willow St., Los Angeles, Cal.

Send for this free book

THIS free book contains a lot of information and ideas about farm buildings and farm construction, with especial reference to

California Redwood

Resists rot and fire

Read "California Redwood on the Farm" and learn—

Why Redwood is the *only* safe wood to use.

Why it lasts longer than any other wood.

Why it requires no paint.

Why it is best for barns, silos, houses, interior finish, roofs, water troughs, drains—everything on the farm.

Every farmer should have this book before building even a hen coop.

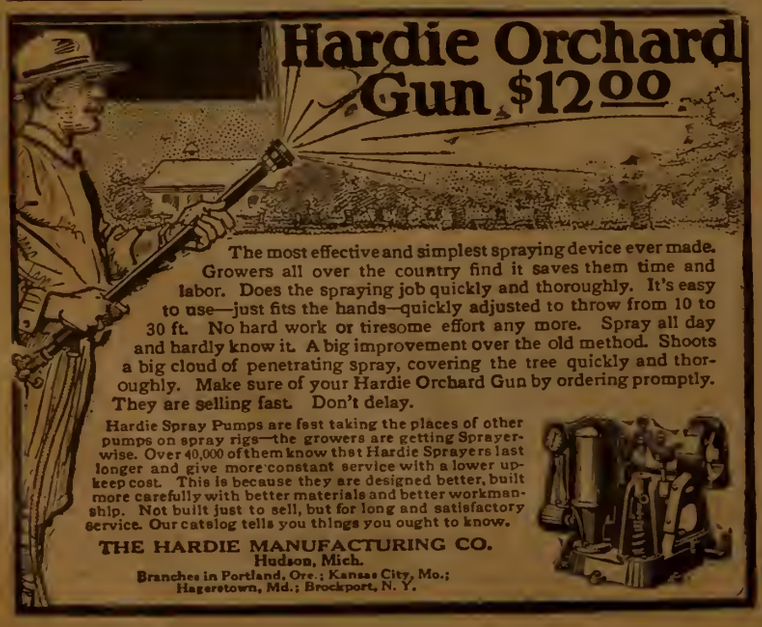
Write today for your copy of "California Redwood on the Farm." It's free. Please give name of your local lumber dealers.

California Redwood Association

771 New Call Building, San Francisco, California

Ask for the Child's Story of the "Big Trees" of California—there's a copy for every child in the nation.

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.



Nitrogen for Citrus Fruits

Our Soil Deficiency Must Be Supplied

WHILE most citrus fruit growers are aware that the use of nitrogen in their orchards is highly necessary, many of them neglect to apply it in proper quantities. They do not appreciate the fact that while California climate is very favorable to orange and lemon growth, the soil in many cases is not, being supplied with very little nitrogenous material.

On this valuable subject, W. P. Kelly, the soil expert, has written an important bulletin for the University of California—a piece of literature that should be in the hands of every citrus fruit grower. Among other things, Mr. Kelly says:

"The citrus tree requires relatively large amounts of nitrogen, and the loss of nitrogen through leaching is relatively great. All parts of the citrus tree, including the wood, leaves and fruit, contain considerably more nitrogen than any other fertilizer element, and experiments in different localities show that marked benefits result from the application of nitrogenous fertilizers. In fact, all of the various lines of investigation and practical experience agree in giving special importance to the use of nitrogenous fertilizers on the citrus soils of California.

"At the present time it appears that any one of a considerable range of nitrogenous materials may be used with fair assurance of success. Dried blood, tankage, whale meat, fish scraps, cottonseed meal, bone meal, the nitrogen of processed fertilizers, ammonium sulfate, etc., may be used with assurance that the nitrogen will readily become available. Calcium nitrate may also be expected to give good results. In choosing between these materials, it should be borne in mind that their nitrogen content varies greatly, and that as a general rule their value as fertilizers for citrus in California is proportionate to the nitrogen content.

When Nitrogen Is Needed

"The amount of nitrogen that may profitably be applied will depend on at least three factors: First, the amount of growth made by the leguminous cover crop; second, the amount of manure or other organic nitrogenous material that is applied; and, third, the age of the trees and condition of the soil. In general, the larger the trees and the heavier the crop, the more nitrogen is required; but, on the other hand, the better the growth of the cover crop and the heavier the application of manure, the less nitrogenous fertilizer will be needed. The grower can best be guided in this matter by the experience of the best growers in his community, together with his own local conditions.

"The nitrogen of nitrate of soda is also readily available, and in other parts of the world this material is generally considered to be one of the most valuable sources of nitrogen. It has even been used successfully in some localities in California.

"Nevertheless, the citrus growers of California are cautioned against its use here for the reason that in many cases the continued use of nitrate of soda has resulted in an increased tendency toward mottled leaf. In view of this fact, and since other sources of nitrogen are available, caution is advised in the use of this material on citrus soils.

Phosphoric Acid

"The second most important fertilizer constituent for the citrus soils of California is phosphoric acid but the need is much less urgent than for nitrogen. The requirements of the citrus tree for phosphoric acid are notable, however, and many of the soils contain comparatively small amounts of it, consequently it will probably pay to apply limited amounts of phosphoric acid. Superphosphate, bone meal or tankage are natural sources of this constituent. When used in intimate contact with decaying organic matter, rock phosphate may also be applied as a source of phosphoric acid.

"All the information at hand points to the conclusion that potash can be eliminated, for the present at least, from the citrus fertilizers of California without seriously affecting the growth of the trees or fruit.

"Many of the soils have been derived from granite, and generally speaking, the soils throughout the citrus region are well supplied with potash."

Big New Lemon Orchard

THE raising of lemons in northern California promises to be one of the big fruit industries of that part of the State. Lemons thrive in the Sacramento Valley, in certain parts where there is very little frost, and it is found that this fruit, like most other citrus fruits, makes good rootage and growth there owing to a favorable seasonal rainfall and other conditions.

Oranges ripen a little earlier in some of the central and northern sections than in other parts of the State, but they are not grown in any great quantity there as yet, so that one really cannot count upon earlier ripening in a general way, and a great deal depends upon the tree stock that is planted by the citrus grower.

News comes from Maxwell, Colusa county, that the Mills Orchard Company recently received 20,000 lemon trees to add to their already large acreage of citrus fruit. This immense citrus farm of over 900 acres of trees already bearing is attracting wide attention.

University Farm Picnic

THE University Farm at Davis plans to hold its tenth annual picnic on Saturday, April 20, 1918. Last year the picnic was a great success, and at this time, when the instruction and demonstrations offered by the departments on the big day will be of vastly more importance and significance than ever before, it will doubtless be even a greater success.

How Water Leaks Mount Up

I HAVE figured out that the drippings and leaks from a faulty gate mount up about as follows, reckoning by the day and by the year:

Water just dropping amounts to
15 gallons a day,
105 gallons a week,
5475 gallons a year.

Water leaking through one-fourth second of an inch aperture:
264 gallons a day,
1848 gallons a week,
96,360 gallons a year.

Water leaking through one-tenth of an inch aperture:
835 gallons a day,
5845 gallons a week,
304,775 gallons a year.

Water leaking through one-fourth of an aperture:
17,425 gallons a day,
121,975 gallons a week,
6,360,125 gallons a year.

Water leaking through one-half an inch aperture:
70,488 gallons a day,
493,416 gallons a week,
25,728,120 gallons a year.

—A. F. G., Redlands, Cal.

Bees in the Orchard

THE use of at least one stand of bees to the acre in orchards to assist in pollination and the planting of scattered orchards for the same purpose was advocated by C. Stewart, county fruit inspector of Lane County, Oregon, at the annual meeting of the Lane County Horticultural Society held recently.

Busy Rabbit Men

THE rabbit game is a busy one these days. Nearly all the rabbit raisers are realizing the results of a propaganda begun some time ago to let the people know that there was good money in their business. One of the agencies employed was Orchard and Farm which was recognized as the best medium for advertising this kind of stock, as well as any other, for that matter.

J. M. Sherman of 2669 North Griffin avenue, Los Angeles, now noted as one of the most successful rabbit breeders in Southern California, says that he received double the number of replies from his Orchard and Farm ad than from any other. This is the experience of all such advertisers.

"I can't begin to fill my orders," said Mr. Sherman recently. "I am much encouraged by the way the business is building up. It looks as if it would be one of the most important small stock industries in California.

Best Fur Animal

"Fur rabbits are in big demand. I do not consider the checkered giants, so highly prized by some, as the animal that is going to be depended upon for future supply. The rabbit which we call the 'California fur' is probably the best for the furrier's use. We imported some of these from Cleveland a while ago, and now have over a dozen breeding does of that kind.

"This rabbit is smaller than the checkered giant, but is marked a great deal the same—that is, black and white. It will average about four and a half pounds and is particularly liked by those who understand the fur-bearing rabbit game."

A great many persons have taken up rabbit culture of late and some of them are making serious mistakes in breeding. R. S. N. Burdick of Concord, Cal., who has had much experience in this line, writes the following on the subject of breeding:

Points to Observe

"Considering that the rabbit-keeper is breeding for a certain type or variety your animals must be selected with great care and with due regard to the ideal or standard governing such type.

"The lepiculturist should avail himself of published works relating to standardization of perfection, thoroughly familiarizing himself with every descriptive detail of the variety or type he is keeping, and mating both sexes in conformity to the applying description.

"In some types, as the heavy meat rabbits, of which the Flemish is our best example, there should not only be considered color, and general form, but size, therefore select as large specimens as may be found conforming to this type, always bearing in mind that results may not necessarily be attained in the first generation, but may appear strongly in subsequent ones.

"In varieties, such as the silver marked giants and other ornamental, the greatest stress should be laid upon the perfection of marking."

Equally as Dangerous

American Soldier (smoking furious-looking rope-like stogie made somewhere in America). Here, Leon, you hold my cigar while I throw this into the German trench.

French Soldier (not used to the American stogie). Non, non, Monsieur Sam. I will hold zee cigar.

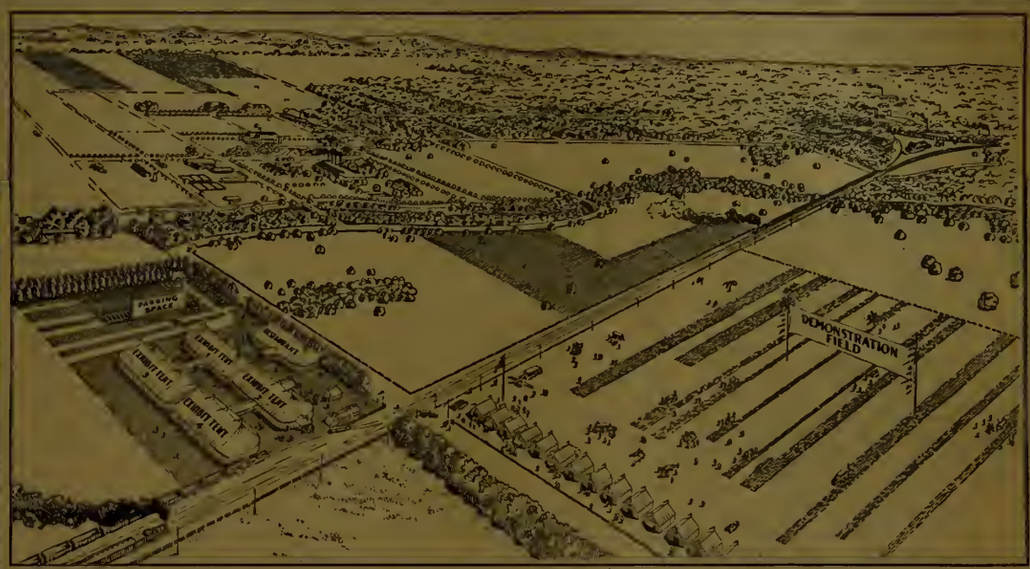
[illegible] of [illegible] the

REGISTERED BERKSHIRES

My herd is headed by Los Royal, son of Winona Champion and grandson of Laurel Champion; also Tehama Boy, son of Panama Lee, the 2d, and grandson of Lee's Artful Premier 1st. Stock from these herd boars are sure breeders. Write for further information to

W. Boyd Carpenter
BOX 98, RED BLUFF, CAL.

HUNDREDS
of the citrus growers of Southern and Central California are using
GARBAGE TANKAGE
9 Units Nitrogen
7½ Units Phosphoric Acid
3 Units Potash
All for $60—F. O. B. Los Angeles
Write for Booklet O.
Southern California Fertilizer Co. 602-610 Kerckhoff Building, 6th and Main Sts., Los Angeles, Cal.



POWER FOR EVERY NEED

Horses, mules and labor are scarce, yet the call for top-notch production makes the need for power greater now than ever before. Tractors, tractor implements and other power-farming equipment fill the need. To see and study this equipment and to learn of the profits and possibilities in tractor-farming is a patriotic duty and a profit-making opportunity for every farmer. This opportunity is offered by the

Tractor and Implement Demonstration and Power-Farming Exposition

THE EVENT
A Tractor and Implement Demonstration and Power-farming Exposition, including over 40 tractors, a score or more of different plows, harrows, scrapers, levelers and other tractor tools, big tent exhibits of all kinds of power-operated machinery for the farm.

THE PLACE
The University Farm, Davis, California.

THE TIME
April 17th, 18th, 19th. The Annual Farm Picnic follows on April 20th.

THE COST
The demonstration and all exhibits are absolutely free of charge,—your only expense is for meals and transportation.

ACCOMMODATIONS
Make your reservations early through the Davis or Sacramento Chamber of Commerce.

HOW TO GET THERE
By S. P. train from San Francisco or Sacramento direct to the grounds. By auto to Davis—from there follow the signs—good roads all the way.

This mammoth show will be conducted three days only—April 17th, 18th and 19th—by the manufacturers and sellers of tractors and tractor-implements, on the University Farm at Davis, California. Practically every tractor sold on the Pacific Coast will be in actual operation there in one big field, with the leading makes of plows and other tractor implements. There will be big enclosed exhibits of tractor accessories, gas engines, motor trucks, etc. There will be important scientific tests conducted by the University. There will be much to see, much to learn and the demonstration and exhibits cost you nothing, except your expenses in coming to Davis. Don't fail to take advantage of this opportunity.

Ask your station agent about special railroad rates.

The
California Tractor and Implement Association

Business Office: 1015 Monadnock Building, San Francisco

4 H.P.—190 lbs.

The 4 H. P. Cushman Handy Truck is the most useful outfit ever built for farm work. Engine weighs only 190 lbs., and entire outfit only 375 lbs.

Besides doing all farm and household jobs, this 4 H. P. Cushman may be lifted from truck and hung on rear of binder during harvest to save a team. In wet weather it saves the crop.

Light Weight Cushman Engines

Built for farmers who need an engine to do many jobs in many places instead of one job in one place. Throttle Governed, with Schebler Carburetor. Run very quietly and steadily—not with violent explosions and fast and slow speeds like old-style heavy-weights. Engine Book free.

CUSHMAN MOTOR WORKS
880 N. 21st Street Lincoln, Nebraska

8 H.P.—320 lbs.

THOS. H. BRUWNE, STOCKTON, CAL. Factory Representative.
Prompt shipments made from California warehouse.

WITTE Kero-Oil Engines

Twice the Power at Half the Cost
Sizes 2 to 22 H-P.—Select Your Own Terms—Direct-from-Factory prices. Write your own order—Save $15 to $200. Prompt Shipment. Big new catalog, "How to Judge Engines" FREE—by return mail, Postpaid.

Save $15 to $200

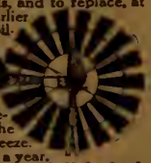
Write Today
WITTE ENGINE WORKS
3120 Oakland Ave., Kansas City, Mo.
3120 Empire Bldg., Pittsburgh, Pa.

Only 3 Cents a Word

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month. Address Orchard and Farm, Examiner Building, Los Angeles, California.

THE SELF-OILING WINDMILL

has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load



We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.
Write AERMOTOR CO., 2500 Twelfth St., Chicago

5 Cents an Acre, Cash

Texas school lands for sale by the State at $3 an acre, 5c an acre cash, and no more for 40 years, but 3 per cent interest; send 6c postage for further information. INVESTOR PUB. CO., Dept. 1, San Antonio, Texas.

DIAMOND FLUME GATE
Watertight—Can't Clog

Reduces water expense by reducing the amount of water needed to do your irrigating. No clogging; this feature alone saves time and labor. Close fitting and accurately adjusted prevents any waste of water. Is watertight. Gates are made of high quality sheet metal. Made in three sizes—1 inch 10c; 1½ inch 12c; 2 inch 15c; 10 per cent discount in lots of 500 and over. Tubes made of any length from 2 to 3 inches—longer tubes to order. The water saved pays for gates in very short time.

Andersen Flume Gate Company, Redlands, California.

Some Stray Facts

Measures Irrigation Water

GREAT difficulties and many disputes have resulted from the inaccurate measurement of irrigation water, but such a new style of meter, called the "water watch," recently has been invented in Los Angeles that is going to do away with a lot of this trouble.

Boxed in the open ditch as it is, this seemingly intelligent little machine holds its calculating head well above the water at all times, and anyone may tell by looking into its face the perfect record of the water which has passed through its gauge. A brass spiral wheel, not unlike a ship's log, hangs in a throat, through which the water is directed. The wheel revolves by the action of the rushing water on its beveled surface.

The speed of the spiral is governed by the flow of the water, therefore if the canal is full and the pressure on the vane is increased by the heavier flow its velocity must of necessity be increased in proportion with the speed of the water, and vice versa in case a very little water is flowing through.

The speed of the revolving vane is transmitted by a brass rod to the head or mechanism. Here the action is registered, calculated and the corrected total is posted ready for reading at any time.

Amount of Lime to Apply

Taking into consideration the price, the effect on the soil, the ease of spreading, and the results obtained, finely ground limestone is the most satisfactory form of lime to use. Splendid results are often obtained by using small amounts evenly spread. The amount to apply depends entirely on the condition of the soil, but two to three tons to the acre is the average application. This amount will usually place a field in condition to grow clover and alfalfa or other legumes.

Lime should never be plowed under, but should be thoroughly worked into the surface by disking and harrowing.

The Armour Almanac

THE new 1918 Armour Farmers' Almanac is out, better, brighter and more interesting than ever before.

The leading article this year is by J. Ogden Armour, entitled "The Farmer on the Fighting Line" and discusses the importance of crops as war munitions.

There is an introduction by C. H. MacDowell, president of Armour Fertilizer Works, articles by Dr. R. J. H. De Loach, director of the Armour Bureau of Agricultural Research and by six or eight others of America's leading writers on agricultural subjects.

Other features are the usual pages of weather forecasts for each month throughout the coming year, gestation tables, tables of church days, eclipses, and morning and evening stars.

There is the usual series of Briggs cartoons. Uncle Obadiah bursts right into the center of a dozen or more pages throughout the book with his shrewd and laughable observations on human nature and everything else under the sun.

Depth and Area of Oceans

The greatest known depths are:

Ocean	Depth Ft.	Area Sq. Mi.
Atlantic	27,366	24,536,000
Pacific	30,000	50,309,000
Indian	18,582	17,084,000
Southern	25,200	30,592,000
Arctic	9,000	4,781,000

The Age of a Horse

TO TELL the age of any horse,
Inspect the lower jaw, of course.
The six front teeth the tale will tell,
And every doubt and fear dispel.

Two middle nippers you behold
Before the colt is two weeks old;
Before eight weeks two more will come;
Eight months the corners cut the gum.

The outside groover will disappear
From middle two, in just one year.
In two years, from the second pair;
In three, the corners, too, are bare.

At two the middle nippers drop;
At three, the second pair can't stop.
When four years old the third pair goes,
At five a full set he shows.

The deep black spots will pass from view
At six years from the middle two.
The second pair at seven years,
At eight the spot each corner clears.

From middle nippers upper jaw;
At nine the black spots will withdraw.
The second pair, at ten, are white;
Eleven finds the corners light.

As time goes on the horsemen know
The oval teeth three-sided grow;
They longer get, project before
Till twenty, when we know no more.
—Ralph A. Coulthurst.

Distillate Kills Gophers

DISTILLATE, vaporized by heat, then forced into the rodent burrows by the sixty-pound pressure automatically developed by a new machine, justifies the hope that a method to exterminate field rodents has been found. This machine, when generally adopted for the control of squirrels and gophers would save hundreds of tons of grain and hundreds of thousands of dollars which are now being spent for poison. In addition to the advantage of economy is the advantage of safety since not only valuable domestic animals but even children have been poisoned by the use of grain or raisins heavily poisoned.

Experts have estimated their percentage of destruction to be not over fifty per cent; but it is necessary to kill over eighty per cent to decrease the pest

The distillate vapor machine has been tested by the highest authorities and it has been found 99 per cent efficent. Being heavier than air, the vapor sinks to the lowest part of the burrow and under pressure of the machine it is forced up through all the openings of the burrow easily seen by the operators coming out of the holes like white steam. These holes are then closed and in ten minutes the whole rodent family are dead including all the young.

Test for Sour Soil

A failure to get a good growth of red clover or the prevalence of a large amount of sorrel is an indication that the soil needs lime. The litmus paper test is a fairly reliable one, and can be made by forming a ball of moist soil about two inches in diameter. Break it open and insert a double strip of blue litmus paper. Press the pieces of the ball together and allow it to remain this way for about fifteen minutes. If the blue litmus paper has turned to a pink or reddish color, it indicates an acid soil. Litmus paper may be obtained at any drug store.

Kill Squirrels Gophers

The only exterminator that is [illegible] per cent efficient and guarantees results or money back.

KILMOL SQUIRLGOPHENE

It contains special chemicals. Kilmol fumes not only asphyxiate the squirrel or gopher, but destroy their lung tissues. Even should the animal reach fresh air, he can't survive. No other exterminator is so effective as Kilmol. That's why Kilmol costs a little more—but economy in labor warrants the advanced price. For best results use repared waste balls saturated with Kilmol.

New formula of U. S. Government Poisoned Barley is effective in dry weather. Kilmol and U. S. Government Poisoned Barley are used and endorsed by the biggest and most successful ranch owners.

Remember, results guaranteed or money refunded.

Your local dealer carries Kilmol Waste Balls and U. S. Gov't. Poisoned Barley.

Mfd. by Herbert F. Dagas, 1170 Sutter St., San Francisco

MALIGNANT GROWTHS
TUMORS, WENS AND ALL BREAST LUMPS TREATED

Strictly a non-operative treatment. NO KNIFE, NO BLOOD AND WITH LITTLE OR NO PAIN. Our method of application positively kills every particle of diseased tissue.

REMEMBER that danger signal is a sore that does not heal or the rapid increase of growth in a lump, wart, mole or scab which may have been present a long time. If these conditions appear in an individual over 40 years of age they are NEARLY ALWAYS OF A MALIGNANT NATURE and should be given immediate attention.

Send for our 64-page (free) book with names and testimonials of cured patients. Many right here in your own vicinity. EXAMINATION FREE.

CHARLES STIRLING, M. D.
253 12th St., "Shirley Treatment." Oakland, Cal.

HOTEL LEE

European Plan
822 West Sixth Street
Los Angeles, Cal.

"THE HOUSE OF COMFORT"

Modern, Beautiful Ball Room, Card Room and Billiard Room in Connection With Lobby.

Located on Interurban Lines, Connecting to All Beaches, and on Local Lines to All Parts of the City.

Convenient to Shopping District and Theaters. Rates, with Bath, $1.00 and up.

Sunset Pico 1007. Home 10743.

WM. B. CLARK, Prop.

Shoot the Worthless Dogs

FIVE THOUSAND letters were sent out to sheep raisers last spring, and all but eighteen of the replies stated that the present scarcity of sheep is due to dogs.

Two dogs will eat as much as a hog on alfalfa and more than a dozen chickens. And there are 6,000,000 dogs in the country, one for eight sheep. Sheep furnish wool and mutton, hogs make pork and chickens produce meat and eggs.

More than 5,000,000 hogs are needed to relieve the present meat shortage, and many sheep to furnish wool and mutton. Eastern hill farms are ideal for sheep raising, and almost every prairie farm is adapted for keeping a small farm flock without much extra expense for buildings or added use of grain. Yet this country ships in half of the wool needed each year.

No single thing has done more to throttle the sheep industry in this country than the curs which are allowed to run at large. Besides killing and worrying sheep, they kill poultry, attack cattle and carry hog cholera.

Fences will not solve the problem, for that added expense will keep many farmers who already have hog-tight fences from starting a farm flock. Keeping the dogs chained at night will not do, for dogs often attack sheep in daylight. Paying for the animals killed helps some, but it does not encourage those whose flocks have been destroyed to start again. A good dog law in every State, enforced, is the logical solution.

Several States have laws which protect sheep quite well, but too often they are not enforced. Pennsylvania is among the latest to pass a good dog law which provides for the licensing of all dogs, the same as automobile are licensed; the record is kept by the county treasurer. Dogs running at large without tags may be killed and those with tags may be taken up by proper officers.—Farm Journal.

How I Dynamite Soil

I HAVE an orchard which was planted seven years ago. At that time I had never heard of using dynamite to blast tree holes and my trees were planted in spade dug holes. At some places it seemed impossible to get the trees to grow, although some of them were replanted three times. I attributed their failure to hardpan, cemented gravel or some type of soil that does not permit root growth or is impervious to moisture.

About four years ago I tried dynamiting for the first time. It was used in places where I had not previously been successful in getting trees to live. After adopting the new method I had no further trouble and since that time have been doing all of my resetting work by this method.

Some of the trees planted in blasted holes have grown so rapidly that they have nearly caught up with others planted in spade dug holes two to four years ahead.

Planting trees with dynamite is a very simple method. A bore hole is put down about thirty inches and one-half cartridge of low grade dynamite to each cap and fuse being attached is tamped in and the fuse lighted. The hole is then dug out to locate the cavity formed by the blast and the hole filled to proper depth. The tree is then set and the earth thoroughly firmed.

It is very important to do this blasting when the subsoil is dry, for wet subsoil has a tendency to pack rather than pulverize.—C. F. H.

Roeding Now a Regent

GEORGE C. ROEDING of Roeding place, Fresno, Cal., has become an ex-officio member of the Board of Regents of the University of California. Mr. Roeding holds office by virtue of the fact that he has been elected president of the State Agricultural Society, succeeding John M. Perry of Stockton. Mr. Roeding is a well-known horticulturist and nurseryman.

Plant More Beets

By D. N. Morgan,
California College of Agriculture.

BEET growers are patriotic and will plant beets if assured of a reasonable pre-war profit. Land owners are expected to be just as patriotic and rent their land at a reasonable pre-war rate. Sugar factories are dependent for their profits upon the success and prosperity of their beet growers. Since these profits are increased through the planting of additional acreage the factories are endeavoring to make as fair a division of their profits with the beet growers as is possible. The factories prefer that the growers share in their general prosperity since any excessive profits that are made by them will be taken by the government through the Excess Profit Tax.

Investigations carried on by the University of California indicate that beets may be grown for not to exceed $60 an acre exclusive of land rental. Many farmers are producing beets for less than $50 per acre.

Farmers knowing the possible yields of their land may figure whether they may expect an average yield of ten tons to the acre. If the land will yield this much, which is the State average, farmers should make planting preparations without delay since they may be assured that they will receive a reasonable pre-war profit at the prices now offered.

Since the farmers of California desire nothing more than a reasonable profit, the University has confidence that they will do their part toward increasing the sugar beet acreage and the sugar supply for 1918. The University stands ready to assist in every way possible in promoting the prosperity of the sugar beet growers.

Every citizen of California is anxious to win this war and the sugar beet growers are showing their patriotism by adding to the world's supply of sugar.

Let us do our part.

BUY YOUR PAINTS DIRECT AND SAVE 50%
Why pay middleman's profits when you can buy paints direct, freight paid and guaranteed better than paints sold for twice the money we are asking. WE WANT YOUR PAINT BUSINESS. ARTISANS paints are made to stand contraction and expansion, heavy body, easy to apply. THE MOST ELASTIC PAINTS MADE.
MEASURE YOUR ROOFS AND BUILDINGS AND SEND YOUR ORDER TODAY
Artisans House Paints—Red, Green and Brown, 10 gal. case, 85c gal.
Artisans House Paints (Snow White or Colors), 10 gal. case, $1.50 gal.
Artisans Snow White Enamel, Interior, 10 gal. case, $2.25 gal.
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"TILE-LYKE" for all Interior Purposes, Any Color, Including WHITE, High Gloss, Egg Shell or Flat, 10 gal. case, $1.50 gal.
RUBBERKOTE for any make of roofs—Red, Green and Brown. 10 gal. case, 75c gal.
Rubberkote Graphite Black for all Makes of Roofs, 10 gal. case, 55c gal.
The above in bbls. 25 gallons, 4c gal. less; in bbls. of 50 gal., 10c gal less.
WE PAY FREIGHT TO ARIZONA, NEVADA AND CALIFORNIA RAILROAD POINTS. WRITE OR TELEPHONE FOR COLOR CARDS.
ARTISANS MANUFACTURING COMPANY.
Los Angeles, Cal. P. O. Box 1328. Tel. Glendale 529-J.

Golden Gate Weed Cutter
Kills the Weeds and Cultivates the Soil
Greatest weed killer on the market. Cuts them off clean, under the surface, close down to the roots. Besides, it breaks up the ground so thoroughly that one user says he saved $200 in a single season because after cutting the weeds he did not have to plow. Cuts seven feet or less. Weighs but 230 pounds. Cut adjustable to any depth. Constructed of steel throughout. No other implement like it.
WRITE FOR CIRCULAR which illustrates and describes the Sigurd Weed Cutter and contains letters from many users.
C. G. Sigurd, Manufacturer.
Capital Ave. and McKee Road, San Jose, Cal.

Made in the west for western conditions
GIANT FARM POWDERS
STUMPING — AGRICULTURAL

Western soils, stumps and climate need western explosives. That's why Giant Farm Powders cut the cost of clearing western land. Manufactured for more than half a century especially for the West, they naturally give better results on western farms and orchards.

Giant Farm Powders lead in economy because they go further than ordinary explosives. They break up the stumps thoroughly thereby cutting down labor cost. Money and trouble are saved because of their low freezing qualities.

Warning: If your work is done with any other powder or dynamites, the chances are it will not be done as well as with either of the two Giant brands: Eureka Stumping or Giant Stumping. Look for the Giant trademark on every case, and be sure of the genuine.

How to make the farm pay more money is explained in "Better Farming." This big free book, fully illustrated, will be sent you as soon as we receive this coupon.

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"Everything for Blasting"
Home Office: San Francisco
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THE GIANT POWDER CO., Con., First National Bank Bldg., San Francisco
Send me 52-page illustrated booklet "Better Farming." I am especially interested in (please check) 215
☐ Stump Blasting ☐ Ditch Blasting ☐ Subsoil Blasting
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Name_____ Address_____

Cutter's

Germ Free

Blackleg Filtrate

and

Blackleg Tissue Aggressin

The New, Safe and Efficient Agents for Protecting Calves from Blackleg.

Cutter's Blackleg Filtrate positively protects against Blackleg.

Cutter's Blackleg Aggressin, made directly from animal tissues, **affords even greater protection** and is recommended for Pure Breds.

Neither the Filtrate nor the Aggressin can possibly produce Blackleg in even the most susceptible animals since **both are germ free.**

Both have given 100% protection wherever used.

Prices—
10 dose pkge. Filtrate....$2.00
50 " " " 8.00
100 " " " 15.00
10 dose pkge. Tissue Aggressin 4.00

N. B.—Cutter's Filtrate (a "cultural product" aggressin) is full 5 c.c. to the dose, as we believe that smaller doses, whether concentrated or not, afford less protection.

Write for booklet telling what germ free vaccines are and wherein **"cultural product" Aggressins differ from Cutter's Aggressin** made from animal tissues.

While these new "germ free vaccines" have advantages that should be known to every stockraiser, we see no reason for a quick change to them by stockraisers who have had satisfactory results from the use of

CUTTER'S BLACKLEG PILLS

"California's Favorite" for nearly 20 years

Year in and Year Out they have given better satisfaction than any other vaccine made, and as far as price and convenience of administration are concerned, they have all the advantage.

Prices:
10 dose pkge. Single pills $1.00
50 " " " " 4.00
10 dose pkge. Double Pills 1.50
50 " " " " 6.00
Cutter's Pill Injector.... 1.50

Insist on Cutter products. If unobtainable, order direct. **We** pay shipping charges.

The Cutter Laboratory, Berkeley, Calif.
(U. S. LICENSED)
"The Laboratory That Knows How"

3 Cents a Word

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23d of the month. Address Advertising Department, Orchard and Farm, Examiner Building, Los Angeles, California.

Yes, Tilly Is at It Again

Famous California Cow Boosts Her Record.

CALIFORNIA has rolled up some very fine records in the past few years, particularly in the line of dairy cows. The Eastern dairy folk have come to expect us to go them a notch or two better every little while, and, bedad, we're doing it.

"You can't keep a good man down," and this aphorism is as true of cows as it is of men. In proof of which is the news that the famous purebred Holstein, Tilly Alcartra, is again at her old tricks of rolling up records. She recently dropped her sixth calf, a heifer, and gave such promise of another successful lactation period ahead of her that her owners, A. W. Morris & Sons, Woodland, California, decided to put her on test.

She came through with a new mark for seven days with 40.56 pounds of butter out of 729.1 pounds of milk, which shows the pace she is making in the yearly test she is on.

With this record she is the twenty-fifth 40-pound Holstein cow.

Tilly Alcartra has to her credit the production of 30,451.4 pounds of milk, yielding 1189.03 pounds of butter, in 365 days. In two years she produced 60,278 pounds of milk, in three years she produced 86,678 pounds, in four years 103,099.3 pounds, and in five years she has produced 123,351 pounds of milk and 4856.5 pounds of butter.

Tilly is the champion long-distance cow. At the time of her freshening she was 9 years 3 months and 2 days of age.

Tilly Alcartra, Famous California Holstein

Chinese Labor in Dairies

By Robert S. Doubleday.

NEWS has gone forth that the farmers of Washington State, or at least the dairymen, have declared themselves in favor of the admission of Chinese labor, but this information is only technically correct and is in all probability really not correct at all.

At the recent annual meeting of the State Dairymen's Association of the State of Washington, a resolution was passed urging Congress to lift the ban against Chinese labor, in other words to rescind the Oriental exclusion act. That certainly has very much the sound of a desire on the part of Washington dairy farmers to allow Chinese labor to be admitted to the country, truly enough. But it does not, apparently, tell the whole story.

The association has been in existence for some twenty-five years but it has not to date hit twenty-five good and effective licks for the dairy interests. During the period of its existence, the State has had legislatures of only one political complexion and the State Dairymen's Association has, off and on, played a little politics with these legislatures. The activities of the Dairymen's Association have been largely conventional and ineffective. In any event, there are rules and regulations and laws a plenty obtaining and in effect in Washington which militate against the interests of the dairy farmer and mighty few that are in his favor.

Those members of the association who were present at the recent annual meeting and who opposed the Chinese labor resolution, insist that a dominating reactionary element "railroaded" the resolution through, contrary to the wishes of a majority of the members, and certainly contrary to the desires and views of the dairymen of the State. They cite as evidence, parliamentary contortions of a sort obviously intended merely to pass the resolution willy nilly. In any event, it is the fact that the Chinese labor resolution was a part of a two-faced measure submitted for vote to the assembled members of the association, the other feature of the resolution being a request to Congress that it exempt farm laborers from draft for military service.

Whatever the economic or ethical aspects of this Chinese labor question, it is certainly very doubtful if any considerable percentage of the dairymen of the State of Washington would be in favor of the repeal of the Chinese exclusion act.

Big Hereford Sale

THE biggest event in Hereford cattle history in California will be the public sale at the University Farm at Davis, California, on April 10th. About 75 head of the best Hereford cattle in the West will be offered for sale, and there will be more females than bulls.

The lead taken by big cattle firms in bringing out registered bulls in carload lots to be turned out with the range cows, has made it certain that the business of raising purebred cattle will continue to be profitable.

Cattle men, and especially ranch cattle men, are not fadists. The only reason they buy registered cattle is because it is profitable.

The blood lines are the best there is in Herefordom. Make a date on your calendar to be at Davis on April 10th.

Make more Money Pull big stumps by hand

Clear your stump land cheaply—no digging, no expense for teams and powder. One man with a K can rip out any stump that can be pulled with the best inch steel cable.

Works by leverage—same principle as a jack. 100 pound pull on the lever gives a 48-ton pull on the stump. Made of the finest steel—guaranteed against breakage. Endorsed by U. S. Government experts.

HAND POWER
K Stump Puller

Write today for special offer and free booklet on Land Clearing.

Walter J. Fitzpatrick
Box 576
182 Fifth Street
San Francisco
California

"Good to the Last Drop"

CALVES relish and thrive upon Blatchford's Calf Meal, the milk substitute. They increase in size and weight rapidly; are healthy and vigorous, no indigestion—no scouring.

Blatchford's Calf Meal

should be used to push the calf forward to a grain diet. This important move is more essential now than ever.

Write for Booklet "How to Raise the Largest Calves at the Smallest Cost." If you raise any calves write for the booklet. It is mailed without cost.

BLATCHFORD CALF MEAL COMPANY, Dept. 118, Waukegan, Ill.
COULSON POULTRY & STOCK FOOD CO., Petaluma, Calif.
GERMAIN SEED & PLANT CO., Los Angeles, Calif.

SHORTHORNS

Paicines Ranch Company

offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves.

For prices and particulars, apply to

David J. Stollery
320 Sharon Building
San Francisco, Cal.

No matter what you have to sell, advertise it on the Farmers' Classified Market Place. Only 3c per word.

Rose Crest Berkshires

The blood of such great sires as Ma[illegible] Rials, Champion's [illegible] and [illegible] better on the Coast. I am [illegible] 14 boars and 10 gilts farrowed [illegible] fall pigs of both sexes.
Herd headed by [illegible] Boy 16th [illegible] 15[illegible]2 and Ames Rival 11[illegible]
For full particulars [illegible]
F. L. HALL, Perris, California.

When you Figure *it* all up —

you may find some of your cows are a liability instead of an asset. Why? Almost every cow can be a profitable producer if her system is working properly and she is free from disease.

Kow-Kure, the great cow medicine, is just what the average over-forced milch cow needs. It works on the digestive and genital organs and puts the system in condition to prevent disease and produce properly. Also a sure remedy for Abortion, Barrenness, Retained Afterbirth, Scouring, Lost Appetite, Bunches and other common diseases.

Try Kow-Kure on your poor milkers—you'll find it makes good every claim; in many dairies it has turned losses into profits. Feed dealers and druggists sell Kow-Kure; 55c and $1.10 packages. Write for free treatise, "The Home Cow Doctor."

Dairy Association Co.
Lyndonville, Vt.

KOW-KURE

Guaranteed Vulcanizing
Send in Your Tire or Ask for Price List.
R. B. Tire Repair Shop
1049 South Main St.,
Los Angeles, Cal.
Main 798 F2271

FISH Salmon in brine, 100 lbs., $11.00. Shipping weight, 175 pounds. Smoked salmon, 20 lbs. $3.25. Dried codfish, 10 lbs. $1.75. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Sturges Steel Churns

Make Butter With Ease

Drawn steel barrel—smooth as a bowl—easy to clean. Cannot soak up moisture—saves work and time. Just what every housewife wants. Good for a lifetime use. Beautifully finished in red and blue. Ask your dealer or write us for circular No. 20A

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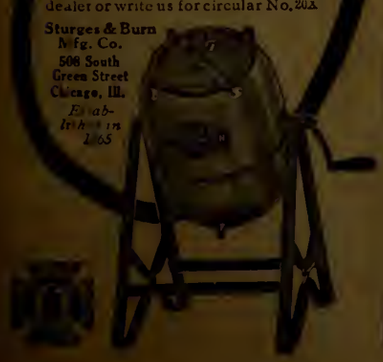
Established in 1865



What to Tell Your Cows

QUAINT and curious though it may seem there is a whole lot of wisdom in this little talk of Noel Negley to a group of dairymen who held a meeting in a Wisconsin town not long ago.

"I trust that as a result of these meetings, you will not go home and simply say you heard good talks and had a good time, but go home and talk the matter over with your wife and then go out to the dairy barn and talk it over with the cows. The man who talks to his cows gets best results, so explain the matter to them somewhat like this: 'Mary, Queen, Bob, Blacky, Red, and all the rest of you listen, for I must tell you what you cannot read. A commercial Kultur has soured the milk of human kindness of the world. As a result George has enlisted in the navy, my other son, John, has been called for service in the army, and at Farmers' Week I enlisted in the Army of the Commissary.

"'As captain of this squad I hereby draft you each and all into the service of Uncle Sam. As a soldier I pledge to give you the best opportunity to render service for humanity. I will feed you according to your ability to convert that feed into milk at a profit. I will give you plenty of good water, plenty of fresh air, plenty of bedding, and will protect you from the cold. Not only that, I will hire a young man to come here once a month to weigh your feed, weigh and test your milk, and to aid me in every way possible to give you a chance to make good.

"'Should he find you a slacker—a soldier asleep at your post, you will be branded with the Iron Cross and then shot at sunrise. Furthermore, if I fail to do my part as specified, I agree to report to national authorities for service in whatever place they think I can best serve.

"'Should I go asleep on the job, allowing my fellowmen to feed the world and fight the battles, I will accept the same penalty I have promised you. "Efficiency" will be our watchword, "Service to the Nation and Humanity" will be our motto.'"

Box Stalls for Goats

VALUABLE goats should be kept in box stalls, writes a contributor to Orchard and Farm who lives in the Monterey goat belt.

"I make my stalls of a dimension of 4x5 feet," he says. "The sides are composed of one-inch boards placed two inches apart until a height of three feet; above that they are three inches apart. The sides are about four feet six inches high. A goat house can be made of box stalls surrounding an indoor corral; this is very convenient where a considerable number of goats are kept, especially when the weather is disagreeable. If you have only a couple of box stalls, a square box-like shed can be built. In such an arrangement a wooden bench on which the goats may sleep at night can put about two feet above the ground. The goat does not care to rest upon soft litter. If straw is provided it will often be scratched away until a hard place is reached. Litter is often necessary to absorb moisture, and nothing better than sawdust for this purpose can be found under California conditions."

War conditions have had a peculiar effect upon the market for guinea fowls. Usually guincas are in demand at comparatively high prices for banquets and high-grade hotel trade. But since the war, banquets and similar opoprtunities for lavish expenditure are in disfavor.

Patented milk distributing device used in the New De Laval (sectional view)

Some big advantages that you can obtain only in the

NEW DE LAVAL CREAM SEPARATOR

GREATER CAPACITY: Without increasing the size or weight of the new bowl, its capacity has been increased.

CLOSER SKIMMING: The improved bowl design, together with the patented milk distributor, gives greater skimming efficiency.

EASIER TO WASH: Simpler bowl construction and discs, caulked only on the upper side, make the bowl easier to wash.

HAS SPEED-INDICATOR: Every New De Laval is equipped with a Bell Speed-Indicator, the "Warning Signal" which insures full capacity, thorough separation, proper speed and uniform cream.

EASIER TO TURN: The low speed of the De Laval bowl, the short crank, its unusually large capacity for the size and weight of the bowl, and its automatic oiling throughout, make it the easiest and least tiring to the operator.

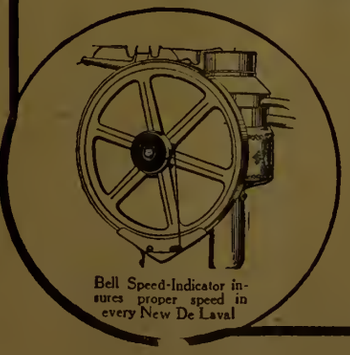
WEARS LONGER: Due to its much lower bowl speed, high grade of materials used, and careful and exacting workmanship, the De Laval outlasts and outwears other makes by far.

ASSURED SERVICE: In almost every locality there is a De Laval representative, able and ready to serve De Laval users.

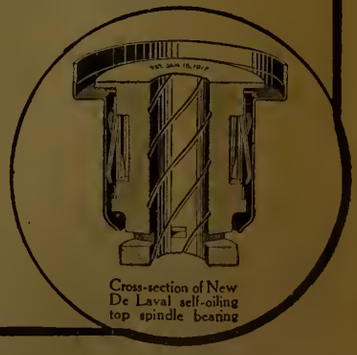
If you haven't the spare cash right now, that need not stand in the way of your getting a New De Laval at once. We have an arrangement with De Laval agents which makes it possible for any reputable farmer to secure a De Laval on the partial payment plan—a small payment at the time of purchase and the balance in several instalments—so that your De Laval will actually pay for itself while you are using it and getting the benefit from it.

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST.
Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Acme Ensilage Cutters and Blowers, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.
61 BEALE STREET, SAN FRANCISCO



Bell Speed-Indicator insures proper speed in every New De Laval



Cross-section of New De Laval self-oiling top spindle bearing

HEREFORD CATTLE SALE

—BY THE—

Pacific Coast Hereford Cattle Breeders' Assn.

UNIVERSITY FARM, DAVIS, CAL.

WEDNESDAY, APRIL 10TH, 1918.

This offering will be made up of about 45 females and 40 bulls. All Western bred. Consigners to the sale—Cazier & Sons, Wells, Nevada; H. M. Barngrover, Santa Clara; H. H. Gable, Esparto; W. J. Bemmerly, Woodland; D. O. Lively, Mayfield; Dean Duke, Likely; Simon Newman Co., Newman, California.

FRED REPPERT, Auctioneer.
WRITE FOR CATALOGUE TO

D. O. LIVELY 215 Hobart Bldg. San Francisco

ELCAR

Big Car Comfort!

Small Car Upkeep!

The new Elcar is the *roomiest car* with the *longest wheel base* of any selling at as low a price. Long, flexible springs and deep upholstery add to the comfort. Ride all day and you won't be cramped.

You secure this comfort for moderate upkeep cost. 18 to 24 miles are averaged to the gallon of gasoline. 1000 miles to a gallon of oil is the rule rather than the exception. Tires give exceptionally long service due to light weight and correct balance. Repair expense runs low—the Elcar is quality built. Every part is 150% strong.

Brief Mention of Elcar Points

Four-cylinder motor [illegible] long stroke [illegible] horsepower [illegible] [illegible] tires [illegible] wheel base [illegible] axle [illegible] gears. Timken roller bearings front and rear. [illegible]

You will be proud to own an Elcar. The lines are long and graceful; the body work high grade; the finish beautiful and durable. The motor is speedy with abundant power for the hard pulls. It is a car that will serve you economically, dependably and long.

Investigate the Elcar at our nearest dealer's. We'll gladly write you his name, if you don't know him.

Catalog on Request

Write for catalog illustrating and describing the 1918 Elcar Models. We gladly mail it to anyone interested.

Elkhart Carriage & Motor Car Co.
C-804 Beardsley Avenue, Elkhart, Ind.

Auto Trailers $85 and up. 2 or 4-wheel type built to any capacity.
Let us figure with you in making over your old touring car into a 2 or 3-ton truck.
Truck attachments $350 and up. Made for any automobile up to 3-ton capacity.
Made in San Francisco. Write for descriptive circular.
Territory open for Agents.

RELIANCE TRAILER & TRUCK CO., INC.
30 Eighth Street, San Francisco, Cal.

FARMER'S SIMPLIFIED ACCOUNTING SYSTEM

Uncle Sam classes farmers as business men, who must report under the Income Tax Law.

We can save you a lot of worry and a possible Government fine.

Increase your profits by cutting the cost. How? By sending for our Accounting System today and keeping an accurate account of every farm transaction.

Our Farmer's Account System is prepared for five years of bookkeeping. All in one volume. A page to a month—132 big pages. Book is 14-16 inches, beautifully bound and finished in gilt and red leatherette bindings.

It will show you what crops made you money. It will give you a permanent, five years' record of every day's work on the farm, and what it cost, and what your profits are.

It helps you get money at your bank.

Banks always will loan more money and loan for less interest to the farmer who can show by exact figures how he stands financially.

Only 5 or 10 minutes a day required to make necessary entries. "System" is so simple a school boy or girl can keep it.

Agents wanted—Los Angeles, Orange, San Bernardino, Riverside and Imperial Counties.

Federal Farm Bureau,
705 Ferguson Bldg., Los Angeles, Cal.
Gentlemen:—
Please send me by prepaid parcel post one copy of Farmer's Simplified Accounting System (regular price $5), for which I am only to pay $4—upon delivery as I am sending in Farmers name separate.
NAME ....
ADDRESS ....
R. F. D. No. ....

Get Busy and Raise Swine

Fatten Some Hogs and Make Money

By C. B. Cunningham,
President California Swine Breeders Association

THE United States had about 67,-000,000 hogs at the beginning of the war, and the census of 1917 showed a decline of about 10 per cent. California showed a shortage of at least 40 per cent in December, 1917, and it looks now as though the supply available this coming fall and winter will be very small.

The United States is now exporting about 30 per cent of its hog products, and in the very near future it will increase this exportation to 40 per cent.

The close of the war will find Europe almost barren of meat animals and with practically no chance for meat production.

If the farmers want to profit by this opportunity they must relieve the enormous world demand for meat and breeding animals that will continue after the war ends.

No one can go into the present market and buy $70 grain and $80 tankage and feed it at a profit, but there is no question that the present price of grain is entirely out of proportion to the cost of its production, and there seems to be no reason why the man who raises his own grain cannot market it at a profit when fed to 15-cent hogs.

While the price of hogs is practically assured for the coming year, the same cannot be said of the grain market. The minimum to be paid on this coast for the 1918 spring pigs when same are marketed will not be less than 1 cent below the Chicago market for a corresponding period.

As this Chicago market will be determined by the value of thirteen bushels of corn, the coast market will be governed accordingly.

No one can say positively what the price will be, but we do know it will not be less than $15.50 per 100 pounds. With the apparent shortage of hogs available for the fall and winter market in California it is almost certain our prices will equal the Chicago prices.

The demand for pork products for export will be so great that in all probability there will be no Eastern supply available for California to draw from, and unless we produce enough for our own needs we will have to do without.

The exports from the United States for the fiscal years ending in June, 1914 and 1917, are as follows:

	1914 Pounds	1917 Pounds
Fresh beef ...	6,394,000	197,181,000
Bacon ...	193,964,000	670,000,000
Hams ...	166,000,000	267,000,000
Fresh pork	2,668,000	57,000,000
Canned beef	3,465,000	65,377,000
	372,000,000	1,257,000,000

These figures show that our wartime meat exports have risen to three and one-third times of what we exported in times of peace.

Why Not Feed Potatoes to the Pigs?

A TREMENDOUS interest was taken in the article on "Using Potatoes for Feed" in the March number of Orchard and Farm. One subscriber writes us that he has been feeding potatoes to his pigs with fine results and is going to fatten a large number of hogs in this way during the present season.

"Why not? Why isn't this a solution of the problem of the California hog raiser who is constantly pointing out that he cannot produce pork in competition with the hog growers of the middle western corn belt?

"It is nonsense to say that there is only one practical feed for pigs and that it is corn. Holland is a pork producing country and yet it raises practically no corn.

"Professor Henry, the great authority on feeds and feeding, says:

"'We should dismiss the idea that profitable hog raising belongs to the corn belt only. Denmark raises no corn, yet produces more pork of the highest quality than any other equal area in the world. The southern States still buy vast quantities of pork from the North despite the fact that their experiment stations have demonstrated that it can be produced at lower cost in the South.

"'Pigs produce a pound of gain from 4 to 5 pounds of dry matter while fattening cattle require from 10 to 12 pounds. The pig yields from 75 to 80 per cent of his live weight as dressed carcass, the steer only 55 to 65 per cent.

"'Pigs will profitably utilize many by-products of the farm, otherwise lost, such as dairy by-products and kitchen and garden waste, as well as grains that cannot otherwise be profitably disposed of.

"'No other line of stock farming can so quickly be brought to profitable production, with limited capital invested in stock and equipment, as can the making of meat from the pig. In many cases the grower should not only fatten his pigs but also slaughter them and market the cured products, obtaining increased profits even though the undertaking be a small one.'"

In the Orchard and Farm article on "Potatoes for Feed," Dr. Russell, the government expert, told of his experiments in preparing this product for going into an animal's stomach. He recommended fermentation for developing the lactic properties of the starch and adding to digestibility. This is one of the most valuable articles ever published in this paper and is attracting no end of attention and favorable comment.

The Pacific Coast will raise an enormous crop of potatoes this year—probably more than it will be able to market in the regular way. Here is a solution of the potato-selling problem—feed them to the pigs and raise hundreds of thousands more of them than are now grown on this coast.

The plan is feasible. It will be tried out in Michigan this year. When conditions were [illegible] for the potato crop in Michigan an Associated Press despatch told of bread made from Michigan potatoes. "Thirty million bushels of potatoes on hand and talk of bread cards."

The farmer may as well make up his mind to save himself and place no dependence on outside help. He has in his power the means of turning the threatened loss into gain by using his potatoes to produce pork, and, by doing this, build up a permanent industry.

Work of the United States Department of Agriculture in developing the Bread and Core processes, the preparing potatoes and supplementing them with feeding experiments by Ashbrook and Hungerford points to the sure way of turning potato losses into profits.

It is not too late to mold the necessary machinery to guard Michigan from gross losses.

But Michigan is not alone in facing a serious situation with its potato crop. Other States including California, will have to face and make the losses unless immediate provision is made to salvage the crop.

My Fertilizer Experiments

By Rich Lucas.

A NUMBER of years ago I conducted a lot of agricultural experiments on a run-down, poor soil, to determine the exact profits I could derive from the proper application of commercial fertilizer and turning under humus, and have procured some very interesting and valuable data, which I have been turning into practice and profit since.

To grow and mature a maximum yield of any crop, the soil must contain the necessary elements of plant food in available form, which are nitrogen, phosphorus and potash. There must also be plenty of humus in the soil to conserve moisture. One element alone cannot produce a crop, neither can the three elements, without moisture. Moisture is very essential, especially when fertilizer is applied, for then the plants grow much more luxuriant and produce greater yields, thus consuming greater quantities of water.

As practically all of the seasons I conducted the tests through were more or less subjected to dry weather just at the period the crops demanded moisture, the yields produced were cut quite short, yet the following experiments I made with applications of commercial fertilizer showed quite an increase in yield of the fertilized plats over the unfertilized, and I am sure if there had been plenty of moisture that the gains would have been much greater. In my experiments I platted the land by measuring and separately weighed the various plats at harvest time, so I know the exact returns in bushels as well as dollars and cents.

With corn grown in one of these plats, the yield from the unfertilized plat was 13.28 bushels per acre, while the fertilized plat, which received 200 pounds per acre application of a home-mixed fertilizer with nitrogen in the form of nitrate of soda, phosphorus as acid phosphate 14 per cent and wood ashes for the potash, the yield was 36.26 bushels to the acre, making an increased yield of 22.98 bushels to the acre. The increased yield brought $16.08 per acre. Again, the corn produced upon the fertilized portion was good, sound marketable ears, while that from the check plat was of only medium quality.

As I wished to seed this field as soon as possible, I cut and removed the corn, shocking it up in ricks in an adjoining field, when I cultivated the field, worked down to a good seed bed and drilled it to rye without any extra addition of fertilizer being applied, with the results that when threshed the following year I found the check plat's yield was only 9.90 bushels per acre, against that of the fertilized plat, which produced an increased yield of 22.62 bushels, and showed an increase of 12.72 bushels per acre. The value of this rye was one dollar a bushel at threshing time, giving an increase of $12.72, although I did not sell until seeding time around when I obtained $1.35 a bushel, netting me $17.27 to the acre. The fertilized rye had more straw and a better berry along with the increased yield.

This experiment represents a residual effect of the fertilizer applied the year before.

With some wheat grown several years ago on land with the application of nitrate of soda at seeding time, the yield obtained was 21.33 bushels per acre where fertilized, while the unfertilized plat produced only 14.17 bushels, the increased yield being 7.16 bushels per acre. At threshing time [illegible] cents a bushel, which gave an increase of $5.72 per acre, although I obtained something over that.

On another set of plats, potatoes made me a yield of 121.10 bushels to the acre on the check plat, 151.50 bushels where receiving acid phosphate and potash, while plat three, which received the same fertilizer as plat two—acid phosphate and potash, with the addition of nitrogen in the form of nitrate of soda applied as a top dressing—produced 276.52 bushels per acre, or an increase over the unfertilized plat of 155.42 per acre. Potatoes that fall were worth 60 cents a bushel at harvest time, which netted an acreage difference of $75.01 between the plat receiving acid phosphate and potash (an incomplete fertilizer) and the check plat, and $93.25 between the unfertilized plat and that receiving the complete fertilizer.

The soil where these were grown was the best on my place—in a draw which had been in meadow for some time, the plowing under of which furnished considerable humus.

These and many other crop results were obtained by careful work. Each plat was given identically the same handling and attention, except for the application of fertilizer.

I am thoroughly convinced that the judicious use of commercial fertilizer pays, and I have continued its use ever seince working out these experiments, and by fertilizing, especially with a fertilizer containing a high content of quickly available nitrogen so the crop could readily assimilate it, by turning under plenty of green crops for humus, and by following a system of rotation, that I am continually building up my soil and increasing crop yields which has meant a constant increase in my bank account.

Abolish Lockstep Schooling

FROM all over the country arises the cry, "Abolish the lockstep in the public schools!" Of course this means a demand that the present system of class instead of individual schooling must go.

A way of abolishing the lockstep in the schools was seen by the editor of Orchard and Farm during a visit to the training school department of the San Francisco State Normal School not long ago. Advancement in the schoolroom to a degree unheard of has been, accomplished by President Frederic Burk by the substitution of individual instruction for the ancient lockstep system.

The creed of the new system is that the business of schools is to shape themselves to the pupils; that each child is a special creation, and, strictly speaking, education cannot be the same for any two pupils; that it is the business of schools to brand as the smug impertinence of an ancient, smug and preposterous pedantry the concept that the schools should saw, plane and compress pupils into fixed school molds.

And what are the results of this new concept put into practice from the first to the eighth grade? The reports in normal health of body and mind will complete the usual eight grades of the elementary school in not more than seven years; that the fastest will finish in not more than three years; that between these extremes, the rates are very evenly distributed; that, in consequence, pupils who enter school at six years of age will complete the eight grades between the ages of ten and thirteen years.

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Monarch Cultivator

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GOOD CROPS ARE ASSURED!

Planting time is nearly here and you need this Monarch Cultivator to prepare your land for seeding.

The Killefer Monarch Cultivator is the best tool that can be used for preparing a seed bed for any crop. Recent heavy rains have packed the soil. Get your order in early for the strongest, best cultivator on the market; a cultivator that will enable you to till your soil to any depth up to ten inches in the best possible manner. This cultivator is used very extensively by the best bean, beet and truck farmers.

Prices are going to advance on all tools. Buy now and raise bigger crops.

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G. E. Special Chick Food
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White and Brown Leghorn Chicks, guaranteed strong and vigorous, and bred for large egg production. Thoroughbred stock Price $12 per 100; reduction by the 1000. Eggs, $1.50 per setting. Stock for sale.

I use and sell Pioneer Incubators and Brooders. There are no better machines made. Prices reasonable. Write for particulars.

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Eggs and day-old chicks for sale. R. I. Reds and Barred Rocks, eggs $14 per 100. B. C. White Leghorns from trap-nested stock, eggs $17.50 per 100. Our B. C. White Leghorn cock took first prize at the Los Angeles Show. Address THESSALY FARM, Mr. and Mrs. W. V. S. Webster, Props., R. F. D. 1, 1878 Junipero Ave., Long Beach, Cal.

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For Mealy Bugs, Scale, Aphis, etc.
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HORTICULTURAL COMMISSION
SANTA BARBARA, CALIFORNIA

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Gentlemen: We have had an extensive trial, amounting to a commercial use of your P. S. C. ROSIN SPRAY.

In this use we have treated red scale, purple scale, black scale, red spider and aphis and wherever used the results are entirely satisfactory to the writer and to his inspectors, who in a large degree are responsible for the commercial control of pests in the county.

I believe the spray is a great improvement over fumigation or any other method of scale control that has been in use for the last twelve years. Yours very truly. (Signed) C. W. BEERS, Horticultural Commissioner.

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How to Make Poultry Pay

Keep High-Grade Stock—The Story of Wilke.

BY all means, if you are going into the poultry business, or if you are raising a few hens for the table or for eggs, keep only high-grade fowls.

This advice has been repeated over and over again in these columns, but it is now insisted upon in a very lucid manner by James B. Morman, a former Agricultural Department expert, who writes:

"The prevailing high price of all kinds of meat has affected the price of poultry. If the farmer is so situated that he can build up a private broiler trade, selling live or dressed broilers, he has a chance to make still greater profits. Private trade prices are frequently 5 cents a pound higher than the best retail prices. The profits in systematic broiler raising are sufficient to attract attention.

"The maintenance of a vigorous flock by a frequent change of blood also affects the number and size of the eggs. Many tests have been made to show the advantage of high-grade hens in egg production over hens of low vitality. The average egg production of my own flock is more than double that of the average farm flock. Suppose a farmer makes a little profit off the eggs his hens now lay every year. If he can double his annual egg output from the same number of fowls his profits will increase greatly. If he keeps 50 or more fowls of a high grade, the net increased profit would amount to a nice sum at the end of each year.

"But the farmer who will really take pride in his hens should consider the advantages of a better grade of fowls as it affects the meat supply of the country. The average scrub farm fowl is a poor table bird. It is true that many farmers only raise hens for their own use. But even in that case a high-grade hen will furnish nearly double the meat of the ordinary farm hen. So this will be an advantage to the farmer.

"When dressed for marketing the White Rocks take no second place in appearance with any breed. They are deep in the breast, yielding a large quantity of fine white meat. A well-kept White Rock hen has a nice yellow skin which gives the dressed fowl a nice appearance, attracts the eye of the buyer, and when cooked delights the palate of the consumer.

"When it comes to the quantity of meat the advantage is plainly with the high-grade hen. The difference is frequently from two to four pounds. Here is an opportunity for the farmer to perform a duty for his country and reap financial rewards for doing so."

A Wonderful Hen

THE records of many fecund fowls have been given in Orchard and Farm, but Lady Hazelnut, the new world's champion, has run up such a high score for the White Rock class that it probably will not be beaten for many a day. In fact, if it should be surpassed, Lady Hazelnut herself will be the bird to surpass it.

In the eyes of the world, genius always seems like insanity, and when they told Alfred Wilke of Wilketton, Idaho, four miles west of Boise City, that he was crazy and didn't have the remotest idea of how to run a poultry ranch, it looked as if they were right.

When he was very young Wilke wrote a book on chicken raising. He was an ardent fancier, but his trend seemed more toward the production of doggerel verse than that of high class hens. As one observer of his work notes, "His conglomerated nondescripts, with all the colors in the spectrum in their feathers and composed of all shapes, styles and fashions, gave young Wilke a shock which nearly seated him. However, the imaginative and inventive mind of the young poultryman within a year were trying to prove to those who had laughed and sneered that success with poultry was not an impossibility. And to prove his conviction he commenced anew with three popular varieties. For a time he was successful, but his inventive mind, coupled with a will to accomplish wonderful things in a course of weeks, some of which would take a lifetime to solve, and his delving into the depths of the unfathomable proved futile. Science in poultry culture was still unsolved by him, and his invincibility of trying to solve it brought on a second calamity. By this time Alfred Wilke was the laughing stock of the country."

But Wilke plugged away, trying this breed and that and settling down at last to white Plymouth Rocks. His careful, painstaking labor finally resulted in the building of up a new poultry method, called the Wilketton daily egg-testing system, which is now recognized as one of the most scientific and successful of all the systems now in vogue. Wilke has done entirely away with trap-nesting. His plan is to test every breeding egg for high fertility, and to improve his strain by employing only the best cockerels and hens, carefully weeding out all those that fall short of certain egg records.

By breeding up and up he has at last become the possessor of the world's best White Rock, Lady Hazelnut. This wonderful bird, which is probably worth a thousand dollars, is the holder of the following world's records:

One month, 30 eggs, September; 2 months, 58 eggs, August-September; 3 months, 86; 4 months, 113; 5 months, 137; 6 months, 161; 7 months, 187; 8 months, 211; 9 months, 234; 10 months, 258; 11 months, 281; 12 months, 304. She produced as many eggs as Lady Show You, the former world's champion, that sold for $800, laid in 12 months.

Poetry and Hens

(Continued from Page 8)

with a home garden, will make a very good living for one person. For each member of the family add 250 more hens. If a bank account is desired above a good living, then increase the number of hens accordingly.

He is counted a public benefactor, who can make two blades of grass grow where only one grew before. It is safe to say that the average acre can be made to produce ten times as much by heavy fertilizing and correct tillage of the soil and by using sufficient water.

A garden home with poultry for income makes the finest combination, for from the poultry there is a constant supply of the richest fertilizer that makes possible the most luxuriant vegetation.

Tells Why Chicks Die

E. J. Reefer, poultry expert of 377 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent of all chicks hatched and cures white diarrhoea over night. All poultry raisers should write for this **valuable free book.—Adv.**

California Wonder Corn

Or Prolific White Dent, a wonderful new corn. First publicly shown at San Francisco Land Show, October, 1917, where it took first prize and blue ribbon over all competitors. Produces 5 to 12 ears per stalk, 350 bushels of ear corn per acre or 50 to 70 tons of very rich silage per acre. A wonderful money-maker. Quick returns at little cost. See article on page 5 of March Orchard and Farm. A few choice selected seed for sale at $1.00 per pound in five pound lots or over. Order now while the stock is complete.

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Orchard Tractors

WHAT is the best type of tractor for orchard work? Is cranking a tractor more dangerous than cranking an automobile? —L. O'B., Visalia, Cal.

We cannot give you any further information about tractors for orchard work further than to say that a good, strong, but rather light machine, one that is easily handled and of a wide range of flexibility, is best for that purpose There are several of these on the market and you will hardly go wrong in purchasing any one of them.

Cranking any heavy duty motor not rigged with a safety device is more or less dangerous, owing to the possibility of back-firing. A safety starter has been invented to do away with this danger. The principle of the safety starter is to allow the starting crank to go in one direction only, by means of an outer and inner ratchet. The inner is pinned to the starting shaft, while a plunger works in the smaller notches of the outer ratchet to prevent it from moving in the wrong direction. Both ratchets are operated by the starting crank, which is thrown out of connection by any fast movement of the inner ratchet in either direction. Thus it is possible for an operator to place the starting gears in mesh, apply the starting handle, start the motor and release the gears without the fear of injury from back fire.

Big Crops of West Canada

THE cereal crop of Western Canada for 1917 was the most valuable one ever harvested; the returns from all classes of live stock being equally satisfactory. The wool clip was not only greater than in any previous year, but the price obtained was double that of 1916, which in turn was almost double that of the year before.

As was the case in 1915 and 1916, many farmers were able to pay for their land outright with the proceeds of their first year's crop. Further evidence of the prosperity of Western Canada is shown by the fact that one in every twenty of the population is now the owner of an automobile.

Western Canada has an enormous acreage prepared for seeding to wheat in 1918. It is larger than in 1917, and will probably surpass the record area put into crop in the year 1915, when the largest crop ever known in the West was harvested. The year 1918 should also see a further increase in livestock activity.

Farmers have been investing considerable sums in cattle; the high prices secured for wool and mutton have opened the eyes of Western farmers to the possibilities of sheep, and such was the demand for breeding animals last fall that it was impossible to meet it adequately; the demand for greater hog production is expected to yield an increase of between 25 and 50 per cent in 1918.

Lime in the Garden

LIME acts to a limited extent as a deterrent against certain insects which may be in or on the soil such as maggots and grubs, and is a remedy for slugs Air-slaked lime is the best form to use. [illegible] in the garden to [illegible] The soil in most [illegible] pound of air-slaked lime to every twenty square [illegible] generally sufficient

Right Now use DEVIL'S DUST and Kill Lice and Mites
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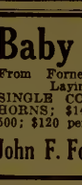

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From Forney's Famous Heavy Laying Strain of SINGLE COMB WHITE LEGHORNS; $14 per 100; $65 per 500; $120 per 1000.
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Uni-Lectric lighting plant generates standard 110-volt direct current; operates from one to fifty lights, electric motor, electric iron, vacuum cleaner, electric toaster, force pump, churn, washing machine, etc. No Batteries—No Switchboard—and a better machine for less money. High speed gasoline motor, generator and automatic governor, all complete in one small, compact unit. Uses standard lamps and fixtures. Simple, easily installed, dependable, economical. Costs less than other systems to buy and to operate.
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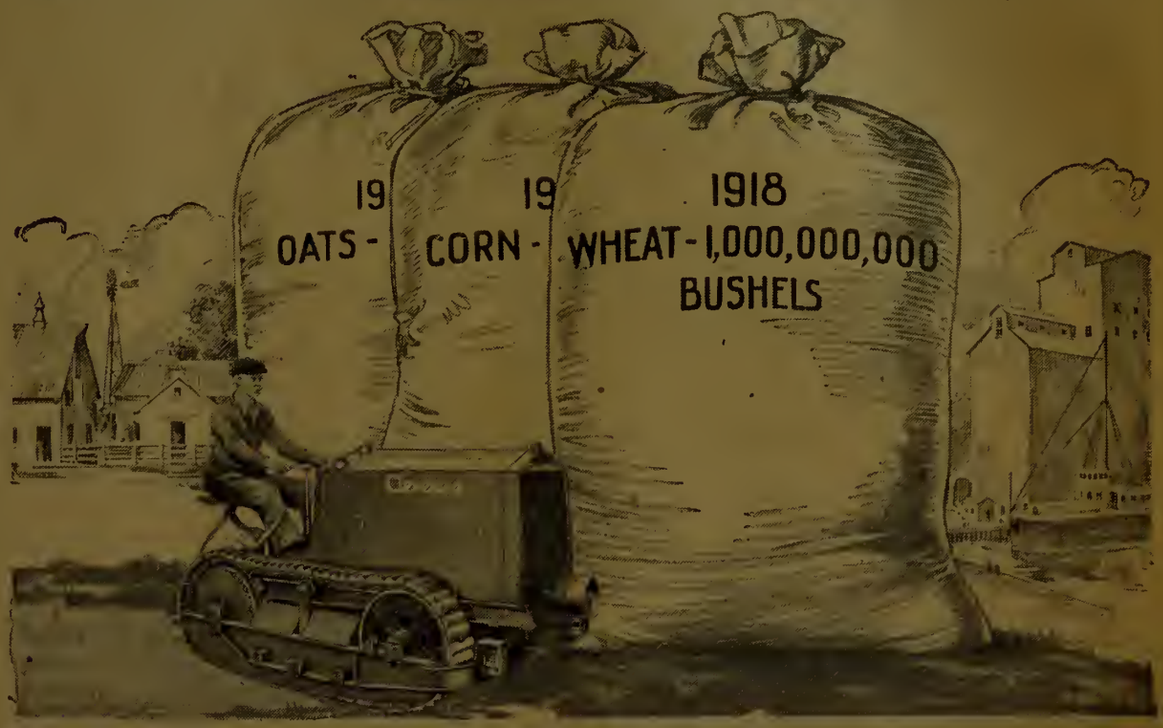

The Task Before the Nation's Farmers

One billion bushels of wheat must be produced in this country this year.

An enormous increase in the yield of corn and oats is necessary.

Thousands of extra acres must be cultivated. Each individual farmer must produce about one-third more grain than last year.

The task before the nation's farmers is stupendous. Intensive methods of every kind must be employed. Machinery must take the place of muscle wherever possible.

In the face of this emergency the Cleveland Tractor becomes an absolute necessity. Its tremendous value to the farmer is emphasized more than ever.

Cleveland Tractor

The Cleveland Tractor not only conserves time and labor—it does far *cheaper* and *better* work. And by doing better work it makes possible the production of larger and better crops—enabling you to do your part for the government—*and make more money for yourself.*

The Cleveland Tractor shows the way. It plows 3½ miles an hour—8 to 10 acres a day. It travels on its own tracks like the great "tanks" of Europe. It will go practically anywhere—through ditches, gumbo, sand and gravel. It is steered by the power of its own engine—simply and easily, and will turn completely around in a twelve-foot circle.

It will not pack the soil, will not mire, will not slip or flounder. It has 600 square inches of traction surface. The track is designed for long service. The sections are constructed to prevent filling or packing with mud, and protection is provided to prevent dirt and mud from falling into the track. The sections are joined with hardened steel pins which have their bearings in hardened steel bushings. The Cleveland weighs less than 3200 pounds. It can be housed in less space than is required for one horse.

The Cleveland develops 12 h. p. at the drawbar for hauling and gives 20 h. p. at the pulley belt—plenty for stationary work of all kinds.

But in spite of its unusual power, the Cleveland is small and can readily be used in orchards and under and among small fruit trees.

Rollin H. White, the famous motor truck engineer, designed the Cleveland Tractor. He has used only the best materials. Gears are protected by dust-proof, dirt-proof cases and are of the same high quality as those of the finest trucks.

Prepare *now* to produce the enormous crops which we must have—and incidentally make more money for yourself. Get ready *now* for the great tasks before you. Order your Cleveland Tractor *now.*

Write to us for complete information and the name of the nearest Cleveland dealer.

THE CLEVELAND TRACTOR COMPANY, Dept. BQ, Cleveland, Ohio, U. S. A.

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Also called Tetter, Salt Rheum, Pruritus, Milk Crust, Water Poison, Weeping Skin, etc.

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Eczema Specialist for 15 Years.

For fifteen years I have been treating one disease alone, ECZEMA. I have handled over one million cases. I do not pretend to know it all, but I am convinced the disease is due to an excess of acid in the blood, and closely related to rheumatism and cancer. **This acid must be removed.**

Eczema is called by some people Itch, Tetter, Salt Rheum, Pruritus, Milk Crust, Weeping Skin, etc. I am fully convinced Eczema is a curable disease, and when I say it can be cured, I mean just what I say—C-U-R-E-D, and not merely patched up for a while to return worse than before. It makes no difference what other doctors have told you, or what all you have tried, all I ask is just a chance to prove to you that this vast experience has taught me a great deal that would be of help to you. If you will write me today I will send you a free trial of my mild, soothing, guaranteed treatment that will do more to convince you than I or anyone else could in a month's preaching. It's all up to you. If you suffer any more with eczema and refuse to merely write to me for free trial, just blame yourself. No matter where you live, I have treated your neighbors. Merely dropping me a postal today is likely to give you more real comfort in a week than you ever expected to enjoy again. Do it right now, your very life may be at stake.

J. E. CANNADAY, M. D., D-1 Court Bk., Sedalia, Mo.

Reference: Third National Bank, Sedalia, or ask your banker to find out about me.

Send this notice to some poor sufferer from eczema. It will be a kind act by you.

SEEDS Collection High Grade Flower Seeds 15 CHOICE **Bulbs 10c**
OLD HOMESTEAD NURSERY, Round Pond, Me.

PATENTS That Protect and Pay
Send Sketch or Model for Search.
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The surface of any spindle shows rough through the microscope. But the powdered mica in Mica Axle Grease fills up this roughness and makes spindles smooth as glass. Then the grease works better and lasts twice as long. No hot boxes. Get a can from your dealer today.

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2800 TRAINS DAILY

Fast
Comfortable
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NORTH

Between
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WEST — PACIFIC ELECTRIC — EAST

Orange Empire Trolley Trip To Riverside, San Bernardino, Smiley Heights and Redlands, $3.50

SOUTH

Mt. Lowe World's Most Famous Mountain Scenic Trolley Trip. Round Trip Fare $2.00

Pacific Electric Railway

My Colt-Raising Venture

By D. J. Whitney.

(Continued from Page 9)

is foaled and stands he is out at least $15 for service fee. Say what you want, the mare will not be able to do as strenuous work while in foal as if she was not bred. She will have consumed more feed also, in order to build up the colt, so that loss of work and cost of extra feed together will run over $10 at least—just what the right charge should be is hard to say. Therefore, the colt costs $25 at the smallest calculation when half a day old.

Take a dairy calf, on the other hand, the breeding is a dairy necessity in order to get milk; calves would have to be produced, even if only to be knocked in the head, so a dairy calf would cost the dairyman nothing at all when born, in comparison with $25 for a colt. Actually taking good grade dairy cows, we can figure the calves, ignoring sex, at $7.50 each a day old, so the horse-raiser finds his colt costing $17.50 more than a calf.

From Birth to Weaning.

The next expense comes in raising the colt to weaning, a period of six months, during which time it has to be kept on expensive feed, provided the mare is working, and if she is not working she is poor business to own, for whether the colt drinks milk or eats hay, the extra feed the dam consumes to pass on to the youngster as milk has to be charged to the colt. Five dollars per month, or $30 for the six months, is a moderate figure for this time. Add to it the time lost in the work of the mare right after foaling, the extra time that the colt takes per day, the fact that it is a general nuisance around, and $15 for labor and other expense is well inside what should be charged up to the animal, making costs at weaning $70. These figures are based on average values of time and feed the last year or two.

Why, you could raise a steer for that. You could buy weaned dairy calves from a dairyman and sell them with their first calves and make good money, if pasture were available, and yet you have the colt barely beginning life for itself. You also are not charging anything against the value of the mare in doing this figuring.

During all this time there is the risk of barbed wire. Colts have a knack of getting into barbed wire and ruining themselves. One of mine speared herself a few hours after birth and would have bled to death if the wound had been overlooked half an hour longer. So for the three years extra the risk of death on a colt is worth say $10 annually. Then take 30 months' pasturage at $1.50 per month, or $45, and you have at three years of age $70, plus $30 insurance or risk, and $45 pasturage, a total of $145. This is close figuring all the way along. If you have an A-1 animal, plenty of good pasture and no trouble getting it, the horse may be worth it, and a slight excess, but profits are small at the best in comparison with what a man could be doing with other kinds of stock on that pasture in the meantime.

If, on the other hand, pasturage gets scant, as it is around here now, either the colts have to be taken in and fed, which is bad for profits, or they may have to scratch too hard for a living, which means that they will not grow the way they should, and unless you have the big, fine colts that grow into big, fine horses, you don't get the price for them.

This past summer I saw two nice-looking yearling colts on an alfalfa ranch, where there was no pasture but alfalfa pasture. The owner said he wanted to sell, but nobody would buy, and $70 was his price for the pair. A neighbor told me about a month after that he thought $30 would get them at that time. This neighbor today stated that he was offered a beautiful colt seven months old, unweaned, from a large, fine draft mare, for $30. This colt was milking the dam thin, so she looked like a scrub beside her fat, but naturally no better team mate, but the owner was not prepared to part the two, he had no pasture, would have to wean them within sight of one another, and the only thing was to sell the colt off the ranch—a hard thing to do with hay $25 a ton and cattle dying in the hills for lack of grass.

Mules a Different Proposition.

That is just the fix a man finds himself in with colts and no pasture. A person buys a cow, a horse, a wagon, because he needs it. No one needs a colt. He buys, therefore, solely to make money, on speculation, and so he buys for a bargain price or not at all, and there are always bargains as long as there are men big enough fools to breed mares because they own the mares, when they have no place to raise the colts. I speak from experience, though on account of having plenty coarse, cheap feed, and being where there usually is plenty pasture, I may come out fairly well at the end, but hope of selling at a real price before they reach a working age is mighty scant, and it is bad business to own a thing that costs to keep but cannot be sold.

Mules are a different and better proposition. Horses are hard to give away just now. Mules are grabbed up at sight and buyers call for more.

Mules, for the first thing, are in much stronger demand than horses, and from the looks of things always will be, and at better prices; next, they are saleable and can work a year earlier than horses, which means less expense raising them and less risk; finally, mules have more sense than horses about barbed wire and other dangers, and are less likely to die, once they get a good start.

The Conclusion.

The conclusion of the matter would appear to be like this: Never start to raise a colt unless you know where pasture is for him and unless you can see plenty of cheap feed for him from the time he is weaned until he can be worked; never raise any but the largest, strongest, draft animals possible; figure up how much better it would be to breed to a jack than to a stallion; and, finally, figure if you could not turn your money over better by raising calves.

There is this about mule raising—a mule is in a way a crime against nature, and mule raising hardly to be praised on that account. What would happen, however, if mule raising was the practice and horse raising the exception would be that in one horse generation the supply of brood mares would diminish so that in order to get either horses or mules more mares would be needed, and it would prove as profitable to breed to a good stallion as to a good jack. Demand and supply of horses and mares would then adjust itself, while they will not adjust themselves profitably to the producer as long as farmers believe that they might as well raise colts because they own a good mare

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PERMANENT PIPE FOR IRRIGATION DRAINAGE CULVERTS SEWERAGE
CROCKER BLDG. SAN FRANCISCO
WORKS—LINCOLN, CAL.

How Alfalfa Is Irrigated

(Continued from Page 3)

spots; the extra cost of preparing the land; the damage done to farm implements in crossing levees; and the fact that this method is not well adapted to a rotation of crops.

Flooding from field ditches or laterals is still the most common method of applying water to the arid lands of Western America. In the States of Colorado, Montana, Nevada, Wyoming, Utah and to a large extent in Idaho, alfalfa, clover, native meadows and grain are irrigated in this way.

Why Flooding Is Preferred

This manner of wetting dry soil originated, it is believed, in the mountain States, and the last half century has seen a gradual evolution of this plan, so that now it has not only become firmly established, but is regarded as the best suited to the conditions under which it is practiced. It can be profitably used on slopes that are too steep for other methods.

Fields having a firm soil and a fall of 25 feet to 100 feet per mile have been flooded successfully. From this extreme the slope may diminish to less than 0.1 foot in 100 feet. Its cheapness is another feature which recommends it to the farmer of limited means.

Ordinary raw land can be prepared for flooding at an expense of $3 to $7 per acre. Again, it is adapted to the use of small water supplies. In the mountain States the irrigation systems have been planned and built to deliver water in comparatively small streams for use in flooding or in furrows, and water users should be certain that the larger volumes required for checks and borders can be secured before going to the expense of preparing their fields for either of those systems.

Filling Up the Subsoil

In Fresno County water is turned into the canals in January and February. The large canals of the Modesto and Turlock districts run more than half a head during the latter half of February.

This is the rainy period in both these localities and the soil usually is too wet for plant growth, but water is applied to alfalfa fields to fill up the subsoil so as to provide a surplus for the rainless summer when water is scarce.

Besides furnishing a supply of much-needed moisture, winter irrigation, when conditions are favorable, prevents winterkilling and improves the mechanical condition of the soil.

New Head of Dairy Division

DR. CHESTER LINWOOD ROADHOUSE, who has been appointed head of the Dairy Industry Division of the University of California, with headquarters at the University Farm at Davis, comes to this new position with a broad experience.

After graduating from college, Dr. Roadhouse was employed as a veterinary inspector in the Bureau of Animal Industry in the United States Department of Agriculture, but resigned in 1908 to become chief dairy inspector in the Health Department of the City of San Francisco, organizing its general dairy and milk inspection service.

In the new position Dr Roadhouse will make a specialty of the problems relating to market milk handling and [illegible]

Hardships of War

[illegible] you can't have a [illegible] What's the matter? Don't [illegible]

He's Learned Something

Only a few years ago this orchard was planted. And now it's only fit for kindling wood. It's coming out, roots and all. It's coming out in a hurry too, not only because it isn't worth the space it occupies but also because the man who owns it has learned something. (Something that perhaps you already know.) He has learned the value of dynamite on the farm. He is saving time, labor, and money by blasting out the old trees with

HERCULES DYNAMITE

And when he plants his new orchard he's going to plant it right—in holes blasted with dynamite, not dug with a spade. Here too he saves time, labor, and money. But, more important, he plants the trees as they should be planted. He gives the roots a chance to grow through receptive soil. They don't have to fight for every inch they make. That's waste of energy that ought to go into fruit.

The new orchard will bear a year earlier than any of his others have. It will give finer fruit and more fruit. It will be a real money-maker.

"And how did this man come to use dynamite?" you ask. He answered an advertisement just like this one. He got a free book, "Progressive Cultivation." He read it. That's the story. *Your* copy of the book is waiting for you. Fill out and mail the coupon below. You'll get "Progressive Cultivation" by return mail.

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Daily Milk Record Sheet

For ten cows, size 10 ins. by 17½ ins.

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[illegible] sheets for $[illegible] Postpaid.
[illegible] sheets for $[illegible] Postpaid.
[illegible] sheets for $[illegible] Postpaid.

If you have ten cows or less, [illegible] will find that a supply for a year [illegible] for 3 cows, three sheets a month, etc.

Each sheet contains space for the number and pedigrees of the ten cows, for 31 days, with a space for the milk record, production of each cow.

Address Orchard and Farm,
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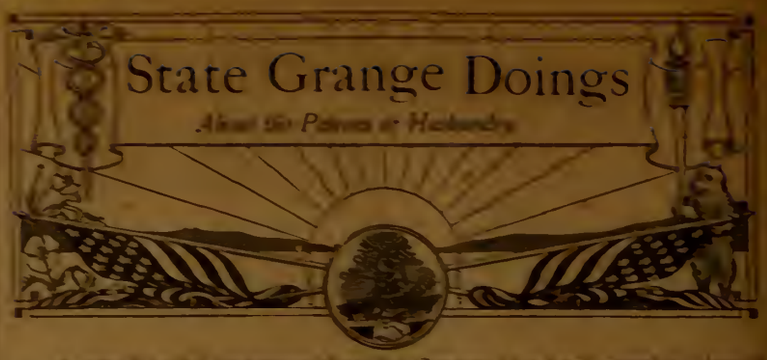
A Home Cure Given by One Who Had It

In the spring of [illegible] was attacked by Muscular and Inflammatory Rheumatism. I suffered as only Rheumatics have done for over three years. I tried remedy after remedy and doctor after doctor, without avail, as I received was only temporary relief. I finally tried a remedy that cured my rheumatism, and it has never returned. I have given it to a number who were afflicted and even sufferers with Rheumatism, and it effected a cure in every case.

I cure every sufferer from any form of rheumatism by the marvelous healing power. Don't send a cent, simply mail your name and address and I will send a free to try. After you have used it and it has proven itself to be the long sought for remedy for Rheumatism, you may send the price of it, one dollar, if you feel like doing so. I am not going to ask you to do this unless I know it will cure you, and I am perfectly entitled to send it free, for I know what it has done for others. Don't delay, write today.

Mail to Thomas Jo[illegible], Power Bldg., Syracuse, N. Y.

Mr. Johnson is responsible. Above statement correct.



Anybody who imagines that the Grange is a back number should read these columns every month. They are edited by Dr. S. G. Wheat, State Grange Lecturer of California.

Close the Saloons!

A [illegible]

A Live-Wire Grange

[illegible]

Here, There and Elsewhere

[illegible]

Write to Your Congressman Today!

By CHARLES W. MATTHEWS, Past State Master.

A BILL relating to the conservation of water power has been introduced by the Secretaries of Agriculture, War and Interior in an administration measure. It is practical, fair and wise. If you believe that the water power belongs to the people and should be preserved and used for the good of all write to your congressman and your senator and tell them so. Write to-day. This bill is sound, practical, a law.

The Grange has forwarded resolutions favoring this measure, and also all loyal people who believe in conserving the fuel or water power for the use of the people and not for the few so that some of the greatest assets of our nation, the water power, shall be utilized now and hereafter to turn into heat, light, refrigeration, long energy that make our homes, factories, street cars and cities. Oxygen from the air to combine per gallon. The force of gravity costs us nothing. Our rivers, mighty and powerful, are sources of energy which can be controlled by wise conservation laws and current laws effect by the use of legislation formulated by city commercial or by capitalists who have taken the place of the people.

The principle that the water power belongs to the people should never be lost sight of and the people must never surrender their God given rights.

As to Farm Labor

By D. O. Lively.

LAST April there was a meeting held in Stockton out of which grew an association of which I was mistakenly chosen president. That association devoted a great deal of its time and energy to the solution of the farm problem. We were told by the farmers, men who were engaged in the production of food products, that there was a necessity for increased labor. We were told, too, that the question of importing exotic labor must not be considered. As has been happily expressed by one of our agricultural editors, the hush was put on the farmer and he was told that he must not talk about Chinese labor, that it had been tabooed in Washington, that Mr. Gompers had turned thumbs down on this project, and we might as well dismiss the question of the importation of Chinese labor.

Not having sufficient influence to break down so great a power, not having yet been face to face with the actual want and necessity which has confronted nations that have been longer in the war than ourselves, we said: "Why should we go up further against a stone wall?"

Then we collected some of the Mexican laborers who were walking the streets in the cities of California, and had them delivered to one of these beet growers with a clear understanding of the amount of money they were to get and the sort of treatment they were to receive. Upon arrival at their destination, they got off on the depot platform and under the influence of some I. W. W. or some other untoward action, they said: "We want a bigger wage; we don't want to work for $2.25 a day"—which I believe was the wage at that time—"we want $3 a day," and they got on the train and went back home. So we realized that there wasn't any help to be derived from that source.

We took up the question of getting labor from the cities. There was a promise made of a survey of the available labor in the cities that might be turned out onto the farm, and we found that that was unavailable, that we could not expect any great help or any increase in the supply of farm labor over the State.

If it is found that it is not going to be possible to break down that prejudice against the importation of Chinese, I should think it might be well to give consideration to bringing to California a large number of these Jamaican laborers, under State control, under national control if necessary, guaranteeing to these people a sufficient income, that they be used solely in agriculture, that they not be exploited, and if that is done, we will be able to increase the farm products very materially.

I was told that a plan was under way, that official correspondence was taking place between the Mexican [illegible] in this country and the officials [illegible] that might result in bringing [illegible] supply of Mexican labor for [illegible] I don't know just what [illegible] but at any rate, the plan [illegible] considered. But we do know that we need more labor.

Every enterprise, every industry that has the actual counting of its men under the eyes of one superintendent, reports a shortage of men, and the farmers are shorter than any-[illegible]

[illegible] greater shortage of [illegible] than in any other [illegible] greater short-[illegible] farm labor twice [illegible] with any other in-[illegible] that [illegible] considera-[illegible] people to-

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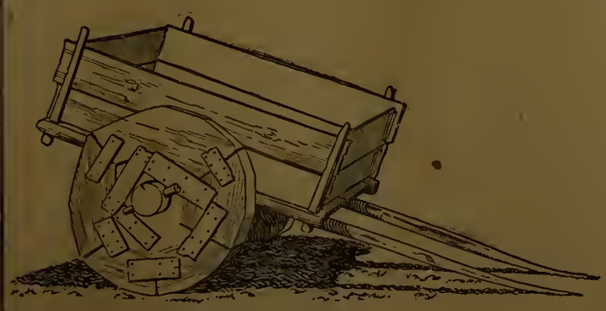

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If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.
Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

ORCHARD AND FARM
Examiner Building, Los Angeles, Cal.

How to Keep Up Your Soil

By J. E. Greaves,
Of the Utah Experiment Station.

CHAPTER II.

IT MAY be argued that the small quantity of nitric nitrogen in the alfalfa soil is due to a lack of its formation, as it is not needed by the legume—hence not formed; but this conclusion is not warranted by the facts in the case, as may be seen from the results obtained where the speed of formation of nitric nitrogen (nitrification) was measured. These also are the average results extending over a number of years and obtained at the Utah Experiment Station:

Milligrams of nitric nitrogen produced in 100 grams of soil in 21 days.

Crop.	Spring.	Midsummer	Fall.	Average.
Alfalfa	3.15	7.48	3.08	4.56
Oats	2.40	4.00	3.00	3.13
Corn	2.18	3.50	1.48	2.38
Potatoes	3.00	15.55	5.60	8.04
Fallow	1.30	5.50	2.48	3.09

Here we find the quantity of soluble nitrogen being produced in the alfalfa soil greater than that produced in either the oat or corn soil and there is no doubt but that this is one reason why an increased yield is obtained the year following the plowing up of an alfalfa field, for this increased action is noted the next year after an alfalfa field is planted to some other crop. This is due to the alfalfa plant stimulating bacterial organisms of the soil so they make available faster the nitrogen of the soil, but this only depletes the soil of its nitrogen more readily than the non-legume, as it is the nitrogen already combined in the soil on which the nitrifying organisms act.

What Alfalfa Feeds Upon

Hence, we must conclude that alfalfa not only feeds closer on the soluble nitrogen of the soil, but it also makes a greater drain upon the insoluble nitrogen of the soil by increasing the nitrifying powers of the soil, and would therefore deplete the soil if the entire crop be removed, more readily than would other crops, a conclusion which is borne out by the direct analysis of the soil.

For the analysis of a great number of Utah soils which have grown various crops for a number of years—some of them having been into alfalfa or wheat for upward of thirty years—revealed the fact that almost invariably the alfalfa soil contained less total nitrogen than did the wheat soil.

The average for a great number of determinations made from alfalfa soils was 7232 pounds per acre of total nitrogen, while the average for a great number of wheat soils was 7398 pounds.

Alfalfa and Wheat

These are average results from a great number of determinations made on adjoining alfalfa and wheat soil and they clearly indicate that in ordinary farm practice the alfalfa is making just as heavy a drain upon the soil nitrogen as is the wheat.

From a consideration of the feeding and stimulating effect of the alfalfa upon nitrates, and the actual quantity of total nitrogen remaining in the soil after wheat and legumes, we must conclude that the legume does not increase the nitrogen of a common agricultural soil—even in the arid region where the nitrogen is low—when the entire crop is removed.

This conclusion does not, however, mean that crop rotation should not be practiced, for there are many reasons why crop rotation commends itself to the careful farmer, but it must not be used and the legume removed with the intention of maintaining soil fertility. This may appear to be an unfortunate conclusion, but it is just the reverse, and if its teaching be heeded it means a fertile soil and an economic gain to the farmer from the system of farming which it requires him to adopt.

There are two practicable methods of maintaining the nitrogen content of the soil. First, planning systems of crop rotations with legumes, the legumes being plowed under and allowed to decay, thus furnishing nitrogen to the succeeding crop. Second, practicing a combined system of crop rotation and livestock farming.

Three tons of alfalfa contain 150 pounds of nitrogen, all of which we could assume came from the atmosphere; assuming the quantity of nitrogen found in the roots as coming from the soil. This is equivalent to the nitrogen found in the grain and straw of seventy-five bushels of wheat. If the alfalfa is plowed under some of the nitrogen would be lost to the growing plant in the processes of decay and leaching, but that the total nitrogen of the soil may actually be increased by the turning under of the legume is certain from field experiments.

To Maintain Nitrogen

The second method of maintaining the nitrogen and organic matter of the soil—the combined rotation and livestock method—is the more practical and if systematically practiced will not only maintain the nitrogen of the soil but will prove of great economic value to the individual following it.

For it consists of a rotation in which the legume plays a prominent part. The legume to be fed and all the manure returned to the soil which would mean the selling from the farm the hay crop in the form of butter, milk or beef which carries from the soil only a fraction of the nitrogen stored up by legume; moreover, it brings for the producer much greater returns than does the system in which the legume is completely removed from the soil.

It must, however, be remembered in this system that only about three-fourths of the total nitrogen of the feed is recovered in the dung and urine. So that in place of three tons of alfalfa adding 150 pounds of nitrogen to the soil from the air, it would add only 120 pounds and this where all of the liquid and solid excrements are collected and returned to the soil. But where the alfalfa is to be fed and the manure returned to the soil, the legume can occupy a much longer period in the rotation and that with greater economy than where the legume is to be plowed under directly.

No Time for Luxuries

IT IS the general feeling that this is no time to invest in needless luxuries, but there is no reason why anyone should refrain from buying useful and helpful things.

Take, for example, the purchase of a windmill. The farmer who is operating one or more pumps by hand, even for a short time every day, would better be spending that time and labor on something productive. The one who is using a gasoline engine for pumping water can do his country a real service, and save himself needless expense, by doing the work with a windmill. A little thought will suggest scores of other ways in which the expenditure of money will serve the country, benefit the spender and assist in keeping our productive organizations going.

Hereafter only five pounds of sugar per family and from 25 to 50 pounds of flour, according to family, is the food administrator's ruling.

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Geo. A. Collins Secy

A Potato Novelty

THERE is a new potato in the State of Washington that aside from being novel, possesses several sterling, intensely practical points — notably super-earliness, extreme hardiness, ability to resist medium frosts, both in initial and mature growth that generally mushes protruding tubers before late digging time, is extremely prolific (sometimes three tubers setting on a single fruiting stem) and coupled with a deep, solid purple coating, thereby making it especially desirous for fancy salads, such a product can be illy overlooked in these times, which demand super-strenuous production to meet the ever-increasing demand upon America for food products in a world crisis.

Comes From New Zealand

My attention was called to a peculiar and highly productive potato in the summer of 1915 by a friend connected with the Puget Sound navy yard at Bremerton, Wash. He was not aware of its name but told me the original seed came from New Zealand.

At considerable expense I secured 3 pounds of the seed of this potato, mainly small ones, which, in order to give a hardiness test, were mercilessly cut one-eye-to-a-hill, and owing to their sprouted condition planted on an unirrigable, unfertilized upland.

Last spring was the most backward, cold, damp and dreary for decades, followed by long, protracted drouth, only broken early in September, which reduced the yield of all my other varieties to a minimum, while in mid-July these purple perfection—a title I have bestowed, not knowing their original names—surprised me with a yield of 1200 pounds, mainly uniform in shape, smooth and scabless, from 15 short rows. Figure the increase for yourself. Edible tubers were plentiful before the plants budded.

A Tremendous Yield

In shape the potatoes are slightly flattened, oblong, lady-finger style, curved at times, attaining six inches or more in length, by two or over in diameter, my heaviest sample weighing nearly a pound, usually creamy white meated, frequently purple streaked, fine-gained and flavored, boil or bake well.

Their irrepressibility, continuous growing urge, combined with extreme hardiness and earliness of setting and maturing, should certainly loom large in assuring repeater crops in localities where climatic conditions are all favorable.

A Hardy Variety

This variety can be planted a few weeks after fully matured and will speedily sprout where environment encourages. I planted my own crop—near the British Columbia line in February this year.

As showing its power of frost-resistence I would say that volunteers of the harvested patch in September last sprung up. Mid-October saw two successive severe frosts that cut all other late potato vines, unripe beans, etc. Early in November another that killed many weeds. On December 23rd these volunteer vines stood nearly a foot high. A severe frost the 24th laid them flat. Digging into the hill January 1st found vigorous shoots emerging from the soil with new potatoes, [illegible] set thereon. Two [illegible] were voiced against [illegible] for marketing, and [illegible] them all at [illegible] planted in dark soil. [illegible] other telling [illegible] or seeming [illegible] Wash.

Irish Cobblers

FOLLOWING the account of my experiences in potato raising in the February issue of Orchard and Farm, inquiries have been received about Irish Cobbler potatoes, correspondents stating that many potato men have not heard of the variety. They will hear from it in time, as it is a winner. I understand that seed of this variety was about cleaned up over a month ago, but as it is the leading early variety in the East, doubtless Eastern seedsmen could supply small amounts for trial, or local seedsmen could order from the East. Not only has it proved supreme here as an early potato, but a few miles to the north, along the river, it is by leading growers considered the best variety for their fall crop.

Dealers have boosted "mountain seed" of this variety, and it would appear to me that there should be a fine opening for farmers with good soil in high altitudes to grow this crop as a seed potato, for the higher the altitude and the colder the climate, the earlier the next crop will be, that is, seed produced there will make a quicker crop than seed grown on lower levels in milder climates.—D. J. Whitney, Exeter, Cal.

Carbon Disulphid

CARBON disulphid is a liquid which evaporates quickly when exposed to the air, forming a heavy inflammable vapor having great penetrative power so that it is very useful in destroying insect pests. This substance is used most extensively to kill weevils and other pests that injure stored grains, beans, cowpeas, and peas, but it may be employed with advantage to kill many other kinds of insects. These may be arranged in three groups. In one group are species that live underground on the roots of plants or that nest in the ground, as do some aphids, the white grubs, mole crickets, ants, and others; in the second group are species that attack various stored products, such as grain insects, pea weevils, bean weevils, pantry pests of various kinds, and mill insects; and in the third group are species that cannot be controlled by the methods commonly employed for their near relatives. In this last group belong certain other insects that cannot be combated satisfactorily by spraying, and various wood borers that cannot be reached with poisons but can be reached easily with vapors.

In small quantities carbon disulphid is put up in tight tin cans; in large quantities (50 to 1000 pounds), in steel drums. It may be purchased in small quantities from most druggists at from 25 to 35 cents per pound, but if any considerable quantity is to be used it is better to buy from some wholesale druggist, or, better still, directly from the manufacturers. Manufacturers can supply impure grades, which are commonly used for insecticidal work, at a cost of from 10 to 15 cents per pound. The charge for steel drums is paid by the purchaser, but the drums are returnable at purchase price. Addresses of manufacturers may be obtained from any entomologist or from the director of any experiment station.

Samples of Yolo grown cotton sent to experts at Phoenix, Arizona, have brought reports "this cotton is very good the grade being fancy, which is our highest grade."

Berlin gas-users have been put on half rations. This, of course, applies neither to the Kaiser nor to his gifted son.

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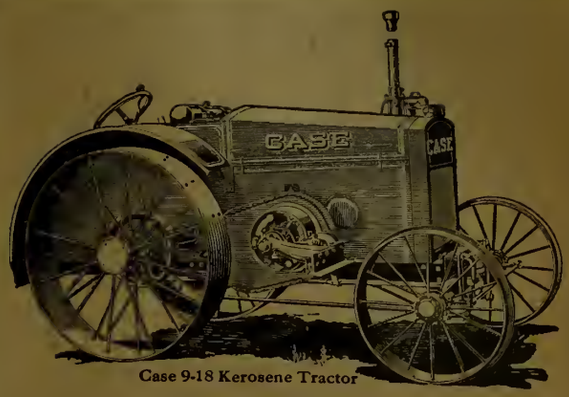

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The Flower Garden

By Mrs. E. E. Paquette

Mrs. Paquette, who is a well-known floral gardening authority of Ventura, Cal., writes exclusively for Orchard and Farm. She will reply to questions addressed to her at 1118 Polli street, Ventura, Cal., if the inquirer will enclose a stamp.—Editor.

IF YOU have not yet divided your golden glow, golden rod and Shasta daisies, by all means do so at once before the young growth gets so large that it will be broken off in handling. In fact, all perennials should be divided and replanted just as soon as possible.

All cannas, dahlias, gladiolus, tuberoses, bananas and amarillis that have not been bedded out should be planted at once, as all danger of frost is now over and they should get a good start before the hot, dry weather of July and August.

In planting out tall plants such as caladium, cannas and bananas try to plant with the banking effect—highest plants in the back, with lower ones in the front—and in front of them some still lower plant.

Sow in the open all annuals not yet planted. This will include centaurea, marigolds, zinnias, poppies and cosmos.

Sow in the seed boxes perennials and biennials such as campanula, columbine, foxglove, larkspur and hollyhock.

Plant out small plants of aster, snapdragon, chrysanthemum and late pansies.

Keep a close watch on all plants for plant lice and spray with nicotine spray or dust with tobacco dust.

Near the coast it is a good plan to dust your rose plants with sulphur to prevent mildew. Use a bellows and dust while the plants and foliage are damp with dew. Select a day when a good warm sun is assured, for it is the action of the sunshine on the damp sulphur that releases the fumes that kill the mildew spores.

Try a few of the shaded alyssums. There is a very pretty yellow, also lavender and rose shaded varieties, all fragrant with a peculiar honey-sweet perfume, and all fine for borders and massing.

One of the daintiest little flowers I ever saw is the Canterbury bell carpatica, or Carpathian hare-bell. It makes a low, compact plant about six inches high, is free-flowering and perennial and has the dearest little clear blue bells. Fine for borders.

Do not hesitate to plant anything new just because it is new and your neighbor has not got it in her garden. Make it a rule to "try anything once," and you will be rewarded with something rare.

Treatment of an Old Stump

"I have an old stump in my side yard. It is about five feet across. I can spend just a little money on it. Will you suggest something artistic for the top of it?"

If I had a stump in my yard I would have the plumber make me a box of zinc in the shape of the top, and while he was making it I would paint the top of the stump so it would not rot too soon.

I would have the box about six inches high and in the center I would have another box made about two feet across; have the center box water tight and have the outer part with holes for drainage.

When the box was done I would put it on the stump and level it, and fill the outer box with good rich soil, paint the outer edge to match the stump and then plant Kenilworth ivy or common variegated myrtle in the outer box of soil.

Now put some clean sand or gravel in the bottom of the center box to break the glare of the zinc, and plant a few sprays of parrot's feather and let the birds have it for a bath. It will be easy to refill with the garden hose, and if you should want to empty and clean the pan it will also be easy to siphon out the water with a hose.

Vines for a Kitchen Door Screen

"Our kitchen door faces the south and also one of our neighbors. I do not want to build a 'high board fence,' but I do want shade and privacy. What are the best vines for evergreen foliage? Would like to have as clean a vine or vines as I can have."

One of the cleanest of all vines is the vitis capensis, or evergreen grape. It makes a rather slow growth the first year, so it would be a good plan to build your trellis for your vines and then plant sweet peas or morning glories to cover it while the grape is getting started. The bigonia chererei is an evergreen bigonia with beautiful cherry-colored bloom. It is tender and will stand but little frost. It makes a very rank, clean growth and needs a good strong trellis to support it. The bloom is trumpet-shaped and of a really fine color.

About Dahlias.

"Two years ago I bought a lot of good dahlia bulbs and they all grew. I left the bulbs in the ground until spring, then took them up and divided them, and only about a third of bulbs grew. So this year I lifted the bulbs and stored them in the basement, and in January I planted them in sand and sawdust after dividing them, and again about one-third of them grew. The rest are solid, but show no sprouts or shoots at all. Will you tell me what is the reason they did not all grow?"

Dahlia bulbs must have a part of the crown of the clump on each bulb to get an eye. The bulbs are worthless without an eye. If you will cover the clumps with moist sand for a while before you try to divide them, you will see the eyes showing at the crown of the clump, and then you can take a strong, sharp knife and cut an eye to each bulb. There is no use in saving the big round bottom bulbs that have no eyes.

"I have been told that double cactus dahlias do not have seed, and if they should have seed the seed would not grow. I have some seed saved from a beautiful big light yellow one that I had intended to plant, but do not want to bother with them if they will not grow. Is it true that they would not be good? What would you advise?"

By all means plant your seed. You know there are exceptions to all rules. I have grown some fine new varieties from the seeds of double dahlias. There are some of the double ones that are so full that the doubleness prevents the formation of seeds. But where the seeds do form, there is no reason why they should not grow.

"Will you tell me what is the difference in the peony-flowered and the common cactus-flowered dahlias? And what are some of the best peony-flowered dahlias?"

The only difference in the peony-flowered and the cactus-flowered is in the shape of the petals, and that is hard to describe so that you would understand the difference. The best way is to just get a few of each. All the peony-flowered dahlias are [illegible]. One dahlia specialist said the Cactus Dr Perry and Mrs Warner were the finest things in the dahlia family. I think it is a matter of taste as to which is the best.

Sales of the 1918 fig crop have been made at good prices, and [illegible] fig planters are investigating [illegible] that are said to be suitable for [illegible] culture

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Eliminating Middleman

THE new Vegetable Union organized at Compton, Cal., with a membership of ninety and controlling about fifteen hundred acres of cauliflower in that section, has a plan of marketing and shipping that dispenses with the middleman, as explained to a representative of Orchard and Farm by W. Sandercook, manager.

This association owns one of the most modern plants in the country, equipped with a patent conveyor that enables it to unload a car of crate shooks in less than two hours that would take seven men eight hours to unload by the old process. It also owns a box-making machine that saves the labor of at least eight men, and many other modern devices that save the growers large sums of money annually in the cost of operation.

The association is also prepared to take care of all small and inferior cauliflower that does not make first-class shipping stock, by the pickling process.

This by-product is packed in barrels with brine and shipped to the large pickling works in the East where it is made into mixed pickle, chow chow and other edibles.

In this way each grower realizes something for all the cauliflower he brings into the packing house. Each load of cauliflower is graded into four grades—fancy, choice, standard and culls. The grades are pooled and each grower gets the same price, according to grade. All that is deducted is a small per cent for operating expenses. If at the end of the fiscal year there is a surplus left over in the operating fund the amount is rebated to the growers in accordance with the vegetable contributed to the pool, it being on a non-profit sharing basis.

With the labor-saving devices, shipping and selling direct to the markets and small operating expenses the plan will enable the members of this association to realize a better price for their products. In the near future they expect to get out ten cars daily and employ at least one hundred persons.

Not Written by an Old Maid

It might help to conserve the meat supply if we could raise a generation or two of vegetarian dogs and cats. "Cat meat" and "dog meat" seem most inconsistent with conservation.

[illegible] John P. Ormo grew [illegible] on seventy acres [illegible] Valley of Arizona, [illegible] approximately [illegible] of seed, [illegible] $100 per [illegible]

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For the Farm Woman

Edited by Ruth Roberts

What Food Waste Means

By Herbert Hoover.

FOOD has now taken a dominant position in the war, and we must ask the American people to sacrifice far more than was at first thought necessary. We have exported the whole of the surplus of the wheat from this harvest after reserving to ourselves an amount sufficient for our normal consumption of seed and flour until the next harvest. Every grain of wheat or its products that the Allies receive from the United States from now on will be exactly the amount which our people have saved each month on their behalf.

If we are to reduce the consumption of the few products which we should export abroad, we will need to eat a larger proportion of many different foodstuffs which we can not export and which we have at home. For this reason we must not waste any foodstuffs.

A great many individuals in our population eat far more food than is necessary to maintain their health and strength. In this emergency only the simplest of living is patriotic. We want no person in the United States to eat less than is required for good health and full strength, for in this emergency America requires every atom of the productive power of our people. While many can eat less, all of our population can substitute other foodstuffs for the few that are vitally needed for export.

We must not overlook the fact that Russia collapsed not because of the Germans on her borders but largely because of the failure to organize and feed her own citizens, and, if we are to emerge victorious from this war, we can not risk the collapse of another of our Allies from this same cause.

There is no waste of food among any of our Allies—there is the most drastic reduction in their consumption. There is actual privation among their women and children. There is starvation in Belgium.

The problem of saving in food is a local and individual one, so that more precise and definite rules just to all can not be formulated. It is a matter for the conscientious consideration of every individual that he or she should eat only that which is necessary to maintain bodily health and strength and unselfishly to select those foodstuffs the use of which relieves international necessities.

In this winter of 1918 lies the period when there will be tested in this great free country of ours the question as to whether or not our people are capable of voluntary individual self-sacrifice to save the world.

The Eatless Meal

WHILE Orchard and Farm is a little dubious about the two-meal-a-day plan for farmers, even in these stressful times, the following suggestion made by one who signs herself "Housewife" is given for what it may be worth:

"It is almost impossible to make any estimate of the wheat, meat and other foods that are being saved by farmers, as so much of the time our meals are wheatless and meatless anyway, but perhaps I can tell you a few things we are doing that will show you we are not using much of the restricted articles.

"In addition to wheatless and meatless meals, we have been having one eatless meal each day. Breakfast about 9 o'clock and dinner late in the afternoon. We have all gained in weight, too, and I find it a great economy in labor as well as food. Of course, it would not work successfully in a family where there were children going to school.

"For breakfast we are using one-third kaffir, one-third cornmeal and one-third ground wheat as a substitute for cream of wheat. We have our own kaffir and cornmeal, so buy only a little wheat flour—bought a 24-pound sack almost a month ago and still have at least half of it.

"As a general thing, we have meat only occasionally. As a substitute I make substantial cream soups and vegetable stews.

"I believe I have made just one pie during the last four months—so you see I have saved some fat. Instead I have made puddings and custards, and we have used a great many baked apples and dried fruits."

Dangerous Cosmetics

WHEN Uncle Sam deems it necessary, as he has recently done in a broadcast bulletin, to warn his multitudinous nieces against the use of dangerous cosmetics, would it not be well for the said nieces to be a little more careful in the selection of the face-bleaches, skin-removers and other powerful chemical agents, many of which contain poisons that may cause serious blood infection or extreme local irritation and disfigurement?

The use of cosmetics by women, young and old, was formerly confined almost exclusively to the city. In France you found the rouged and powdered dame and damsel in Paris, but not among the peasantry, and in a way this holds good today, so far as that nation is concerned, but in this country the Hebe of the crossroads aspires to an enhanced beauty by the use of those materials of which a juvenile poet sings:

"Little dabs of powder,
Little daubs of paint
Make my Auntie Maudie's face
Look like what it ain't."

The use of any sort of "beautifier" was formerly kept a deep secret in the breast of a country girl, but now it is a common thing to see a vanity box in the hands of such a young woman at a dance, and there are those who make no scruple of using the powder puff or the chamois skin, perhaps in some corner, with their partners looking on. As a rule, the male sex, which was formerly supposed to despise this making-up by women, now seem to accept it as a matter of course. Over $14,000,000 worth of cosmetics were sold in the United States last year.

Sweets for Children

LOUDER than ever, all over the country, physicians are crying out against the excess of sweets consumed by Americans, particularly by young people and children. The doctors assert that many of the diseases of the stomach and intestines are caused by the abnormal use of candy and of sugar generally which sets up an acid condition in those organs which soon becomes chronic and is hard to combat.

The average person in this country now consumes over one hundred pounds of sugar annually, and in towns, large and small, the consumption is over one hundred and twenty-five pounds per capita. This is from two to five times as much as is consumed per capita by another nation save Britain, which eats about eighty pounds per capita each year, though considerably less in these days of war. We are prone to think of Turkey as a country of sweet-eaters, yet the average American uses over five times as much sugar as the average Turk.

Pure candy, eaten in moderation, is not harmful to your child, but if he demands a great quantity of sweets, as most children do, you should make no attempt fully to satisfy that demand with candy nor with artificial sugar of any sort, though perhaps milk sugar is less injurious than some others. You can gratify his craving, which is generally a natural one, with natural sugars such as those contained in honey, dates, figs or other sweet fruits. The Chinese give their children pieces of sugar cane to suck or chew, but let them use candy or other sweets very sparingly.

Fighting Chicken Mites

A SPRAY pump is of great convenience when endeavoring to eradicate lice of all sorts from poultry houses. Kerosene emulsion is one of the best remedies to use, and it can be applied to the best advantage and with a minimum of work with a spray pump. The Iowa Experiment Station recommends an emulsion made of one-half pound of hard soap, two gallons of kerosene, and one gallon of water; the mixture should be diluted with soft water before using. All parts of the poultry house should be thoroughly sprayed, attention being given particularly to cracks and other possible hiding places. An application of this sort should be made three times on the same day, at intervals of an hour or less, and the treatment ought to be repeated every three or four days for a period of two weeks. One may then be pretty certain that his poultry house is free from pests of this kind, and it is not necessary to treat the hens directly for mites, as they leave the hens during the day and will be killed by the kerosene application.

It is essential that cleanliness be observed in the poultry house, and all filth should be removed at short intervals, as unsanitary conditions are favorable to the multiplication of insect pests. It is also an advantage to have all of the interior equipment of the house, such as roosts and nests, removable, so that they may be taken down and cleaned frequently.—G. W. E.

Liberty Candies

Popcorn Candy—For making popcorn candy either honey, maple syrup, molasses, white cane syrup or corn syrup may be used instead of sugar. To one cup of syrup allow one tablespoon of vinegar. Boil together until syrup hardens when dropped in cold water. Pour over freshly popped corn and mold into balls or fancy shapes of any pleasing design.

Stuffed Dates—Use the best dates. Remove the stones. Fill with peanuts, walnuts, hickory nuts or any nuts available. Peanut butter makes a good filling that is different. Press dates in shape and roll in granulated sugar, chopped nuts, or a mixture of cocoa and powdered cinnamon.

Fruit Paste—Put through the meat chopper enough cherry, peach or quince preserves to make a half pint with the juice. Heat fruit and add two tablespoons of gelatine, previously softened in a very little cold water. Stir well and continue stirring until it begins to cool and thicken, then pour into oiled dish to make a layer one inch thick. Let dry slowly, sprinkle with sugar and place in box with waxed paper between the layers. A mixture of dried apricots and dates may be used for this paste. Wash apricots and soak over night in enough water to cover. Pour off water, bring it to a boil, pour over apricots and let stand until cool. Put apricots and dates through meat chopper and proceed with the proportions as given.

Chocolate Dainties—Put through the meat chopper one-half cup each of dates, figs and nut meats. Add one tablespoon orange juice, a little grated orange peel and one square of melted unsweetened chocolate. Mould into balls and roll in chopped nuts or granulated sugar. This mixture may be packed in an oiled tin, put under a weight until firm, then cut in any shape desired.

Maple Creams—Boil one cup maple sugar with one cup water until it forms a soft ball when dropped in cold water. Remove from the fire and stir rapidly until it becomes creamy. Form into balls the size of marbles and put nut meats on either side. Lay on wax paper to cool.

Apple Gems

1 cup cornmeal.
1½ cups flour.
2 tablespoonfuls sugar.
5 teaspoonfuls of baking powder.
1 cup of milk.
4 sour apples.
2 tablespoonfuls of molasses.

Sift dry ingredients together. Add enough milk to make thick batter. Beat well. Add apples, chopped fine, and molasses. Bake in hot greased gem pans 15 to 20 minutes.

Cann's Seed Potatoes

Certified under State law inspection. Cleanest and best seed potatoes you can buy.
Twenty-one different varieties.
Will produce big crops of the choicest potatoes.
Oregon-grown. Ready for immediate delivery.

FREE POTATO CATALOG
Tells you all about potatoes and potato growing. A post card will bring it.

ARTHUR CANN
SEEDMAN
198 S. First St., San Jose, Calif.

A Washing Machine For Every Home

We carry the largest stock and greatest variety of washing machines on the Pacific Coast, so if you are in the market for a hand electric or power washing machine, write us today and we will send you literature on whatever style you desire.

A. A. WILSON
751 S. Spring St.
Los Angeles

W. Bernstein

Reduction Sale on Registered Poland Chinas, Wednesday, April 17, 1918.

Kings County Fair Grounds, Hanford, Cal.

60 Head will be sold consisting of 18 bred sows and gilts, 6 fall boars, 32 fall gilts and 4 great herd headers. Every animal in this sale carries the best of blood line.

Lunch at 11:30.

Sale starts promptly at 12:30.

W. BERNSTEIN
Owner
[illegible]n A. Rhoades, Auctioneer.

How to Be Charming

By Sarah Bernhardt.

IF I stood at the threshold of life, asking of it something with which to buy happiness, I should beg for charm. For if one has charm, she will be loved. And a woman must have love to be happy.

Beauty does not matter. If a woman has charm she can secure whatever she wants—love, success, power. Beauty she is born with or without, and she can do little to change that. The plain woman can decide to be wholesome and to dress becomingly. She can do little else for her external self; but she can cultivate and increase her charm.

Let me tell you how this can be done. The woman of charm has abundant vitality. She does not drag herself wearily about. She enjoys life, and shows that she does. There is charm in her movements, in her speech and her smile.

The woman of charm has the power of being interested in every one and everything for a time. She is interested in the persons who cross her path. This flatters and delights them. They are hers. You have seen how a lens gathers all the wandering rays of the sun, and focuses them upon one spot. That is exactly what focused interest does. All the charm of one's being is concentrated upon one spot. That spot is the person in whom you are interested.

Is she interested in consequence? Is she? Certainement—she is charmed.

The charming person always has a sincere smile. Smiles from the heart give the face a beautiful radiance, as unlike the metallic smile from the teeth out as sunrise is from midnight.

How many women seem plain to those who do not know them, but are loved and adored by those who do—simply because of their charm?

There is the mother's charm, which contents her children. A kind word, a sign, and when a child is ill his mother's charm will induce him to take the most nauseous drugs that the doctor can order.

There is the young girl's charm, purest and most unconscious of all.

Charm is undoubtedly the greatest asset in life. And it can be cultivated; assuredly, yes. My definition? Charm lies in consideration of others.

The thought of self destroys magnetism. It is the grave in which charm is buried.

The most charming woman I ever knew was plain, but no one else knew it, and she never thought about it. Her complexion was the color of the Seine after a rain. Her eyes were the drab of the sky in a storm. There was no beauty in her sparse hair. Her figure had no grace of roundness.

Yet I never noticed these things until, knowing that she knew and practiced all the breadth and depth of charm, I began to study her. So far as outward form goes, she was altogether unlovely. But no one but myself ever discovered it, and I had forgotten it until now.

Her voice, deep and low, still echoes in my heart. She was intelligent. I have never known a charming person who was not intelligent. The dullard has no charm.

Thirty Pounds, Not Three

In the article, "A Potato Novelty," on page 37 of this issue the number of pounds of seed used by Mr. E. E. Martin in securing his enormous yield of 1200 pounds from 15 short rows was erroneously stated. It should have read 30 pounds, not 3.—Editor's Note.

The man who grows more food adds to the wealth of the world; the man who grows dollars may be adding only to his own wealth.

No Ice Needed—Iceless Refrigerator Keeps Food Better Than Old-Fashioned Refrigerators

Testimonials Always Tell the Truth

M. Metzler, Malage, Cal., wrote as follows: "Have used one of your Iceless Cement Refrigerators for two years and like it much better than the old-fashioned refrigerator. We have always been able to churn in the hottest weather and can keep milk sweet for two days in the hottest weather. Can keep vegetables four weeks, cucumbers, lettuce, beans, onions, etc. Butter never melts and it is the best piece for bread I ever saw." Frank Newell wrote: "I have no fault to find with the cooler." We have scores of other testimonials on file.

Most perfect cooling system. Foods keep exceedingly fresh in hottest weather; keeps cool by evaporation; made entirely of cement, reinforced; made in sections; easy to set up. Shipped anywhere. Our steam tempering process makes cement almost as hard as iron; does not warp or twist; sanitary in every way; not affected by acids nor other strong solutions; does not rust; is antproof; revolving cement shelves; inside enameled throughout; perfect ventilation; no repairs; pays for itself in two seasons; only refrigerator of kind made; two sizes; women praise it; demand doubled every year; impossible to sell through dealers at present prices; sold direct.

FREE The "Iceless Era," devoted to interests of Iceless Cement Refrigerators—Free.

Pittman Hampton Co., Manufacturers, Selma, Cal.

RHUBARB

Special Prices on Plants, Order Now!

I was awarded Grand Prize on Rhubarb, San Diego, 1916. Sold 675 30-lb. boxes, receiving $673.70, from 2350 plants on sandy loam between orange trees, first season after planting. Takes 5000 plants per acre. Perennial—only has to be planted once. Write now for illustrated circular, recipe for a very delicious pie and price list of plants.

W. A. LEE, Covina, California.

No matter what you have for sale or trade you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue.. All ads must be in our office by the 23d of the month. Address Orchard and Farm, Examiner Building, Los Angeles, California.

Do you point with pride to your bathroom

or is it unsightly because of old fashioned plumbing fixtures.

Modernize your bathroom by having PACIFIC Plumbing Fixtures installed.

Their beautiful graceful designs, simple, easy to clean patterns and pure white highly glazed surfaces will make your bathroom a room to which you can conduct your guests with every feeling of pride.

Although PACIFIC Plumbing Fixtures are of superior quality, they cost no more than any other reputable brand, and are guaranteed forever against any defects in workmanship or materials.

Before you build or remodel, write for a copy of 'The Book of Bathrooms'. It is a 56 page book brim full of ideas. Free on request of

PACIFIC
PLUMBING FIXTURES

For Sale by all Plumbers

Main Offices, 67 New Montgomery St., San Francisco
PORTLAND AND LOS ANGELES

Factories, Richmond and San Pablo, California

SAVE YOUR CROPS
USE "CARCO"

The only sure death to slugs, bugs, worms and plant pests of all kinds. Guaranteed to kill the pest—and not to hurt the plants.

Kills Cut Worms
Kills Ants
Kills Red Spider
Kills Mealy Bugs
Kills Chicken Lice
Kills Mites
Kills Root Maggots
Kills Canker Worms
Kills Borers
Kills Slugs
Kills Caterpillars

Prices f. o. b. San Jose

Pints .....50c ½ Gals. $1.30
Quarts .....80c Gals. $2.00

One gallon of Carco makes 126 gallons of spray ready to apply. WRITE FOR PRICES ON LARGER QUANTITIES.

Agents Wanted

We want live agents in all localities. Write for proposition.

ARTHUR CANN
198 South First Street, San Jose, Cal.

Building Material, New and Second Hand
FOUNDATION TO ROOF
Get our money-saving prices
Small lots and special car-lot rates.

3,000,000 ft. lumber .....$13 up
2,000,000 Star-A-Star Shingles, full count 5 bdls. $3
New "A" grade perfect plumbing.
300-5 ft. roll rim tubs, complete.....$24.50
400 flat rim sinks and strainers $4.75
300 "A" grade vitreous toilet comb., $17.50
100 lavatories, apron front $8.00
200 golden oak toilet combination, $16.50
100 white steel toilet combination, $16.00
2 cars nails, base $4.00
300 No. 30 galvanized boilers $10.75
Barbed wire, stock fence, poultry netting.
100,000 ft. galvanized corrugated iron.
800 glass office doors $2.50
200 clothes lockers $5.00
300 pair garage doors $5.00
1000 new pine doors 75
2000 large old style doors ..... .25
100 mirror mantels $7.50
Pipe, fixtures, ready roofing, fittings.
15,000 ft. ¾-inch pipe at 1c per ft.
New best latest designs in linoleum, 75c per yard.

We lead in quantity, prices and quality.

SYMON BROS., WRECKERS
11th and Market Sts., San Francisco.

"Refreshments will be served"

IT makes little difference whether it's a dance, a school or church social, a Red Cross Chapter meeting, a "get-together" meeting of the Farm Bureau or a big rally—

Chances are Ghirardelli's will be "among those present." And—for very good reason:

It promotes sociability. It provides added cheer and comfort. It is a delicious, refreshing food-beverage that is always in order at *any* social function.

In ½ lb., 1 lb. and 3 lb. cans; a tablespoonful—one cent's worth—makes a cup.

D. GHIRARDELLI CO.
Since 1852 San Francisco

Pretty Costumes

Selected by Ruth Roberts.

These costumes are all carefully chosen with a view to their adaptability to the needs of the home dressmaker. None is elaborate or complex and all can easily be made from the patterns provided by this department. To get any of the patterns send ten cents in silver or stamps to Pattern Department, Orchard and Farm, Examiner Building, Los Angeles.

2403-2412—A Splendid Middy Suit.
Blouse 2403 and Skirt 2412 are both cut in 3 sizes: 16, 18 and 20 years. Size 16 will require 6¾ yards of 36-inch material. The skirt measures 1¾ yards at the foot. TWO separate patterns. 10 cents FOR EACH pattern.

2406—Girls' Dress.
Cut in 5 sizes: 6, 8, 10, 12 and 14 years. Size 12 requires 3¼ yards of 44-inch material. Price, 10 cents.

2414—Ladies' Dress.
Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6¾ yards of 36-inch material. The dress measures about 2⅝ yards at the lower edge. Price, 10 cents.

2306—Girls' Dress.
Cut in 4 sizes: 8, 10, 12 and 14 years. Size 12 requires 4¼ yards of 36-inch material for the dress, and 1¼ yards for the over blouse. Price, 10 cents.

2104—Ladies' Dress.
Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 6½ yards of 44-inch material. Price, 10 cents.

2149—Girls' Dress.
Cut in 5 sizes: 4, 6, 8, 10 and 12 years. It requires for an 8-year size, 3¾ yards of 36-inch material. Price, 10 cents.

2141—Ladies' Apron.
Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42 and extra large, 44-46 inches bust measure. Size medium will require 5⅛ yards of 36-inch material. Price, 10 cents.

2407—Ladies' Undergarment.
Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. Size medium requires 3¼ yards of 36-inch material. Price, 10 cents.

2418—Play or Work Uniform for Boys.
Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 10 will require 4 yards of 36-inch material. Price, 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date spring and summer 1917-1918 catalogue, containing 550 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker.

Use Coupon in Ordering Pattern

Herewith find .....cents for which send me the following patterns

Pattern No..... .....Size .....

Pattern No. .. ..Size.....

Pattern No..... .... Size.....

Be sure to give number and size. Send orders for patterns to ORCHARD AND FARM, "Examiner" Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below.

Fruit Standardization

By John P. Irish

I THINK one of the most significant results of standardizing the fruit pack in California is that it has induced the grower to dare to produce more first class fruit than ever before. And I think it is true that there is today being grown in California a larger percentage of first class fruit than ever before, and the end is not yet. Mr. Jeffrey saw wisely both ways, forward and back. He saw not only the benefit of putting in the box only the good fruit that the tree happened to bear, but reaching back from that to standardize the fruit on the tree.

And then there has been another result of it all; it has standardized the men of California; it has taught the men of California engaged in this great industry which is large enough and sufficiently distributed to affect the mental character in the entire State; it has standardized the men, and the young women who are marrying the young men of California today are marrying a better standard of men than their unfortunate mothers had the luck of marrying. It is standardizing the men of California.

I undertake to say that if any fruit grower in California will keep close track, his books will show that he is getting a much greater percentage of profit out of his crop by putting only good fruit into his box than he would get if he tumbled the good and the poor in together.

We have in California an alien born man, one of our very great field crop producers, sometimes called the Potato-King, that splendid Japanese organizer, Mr. George Shima. From the beginning of his experience as a potato producer, he graded his potatoes, putting all No. 1 potatoes into one sack, and all No. 2 into another, and so he has established his trademark and his market has reached as far as New York City. Everything in a No. 1 Shima sack is strictly No. 1, and everything in a No. 2 sack is strictly No. 2. Now, he tells me that his books show that from the beginning he got 25 per cent more year after year for his entire crop by grading it.

That same principle applies to fruit, and I undertake to say. year in and year out, good years and bad years, high prices and low prices, you will get a better profit by standardizing your fruit.

I am proud of very few things I have done in my life, but I take considerable pride in the fact that in company with Mr. Jeffrey, I was at the beginning in urging this principle. We had a great many funny experiences. We went to one of the greatest fruit shipping stations on the Pacific coast, where they had been shipping wormy peaches, and had destroyed a very valuable market by doing that; and every shipper denied that he had ever shipped a wormy peach. So we Billy Sundayed the whole crowd. We hammered at them, we called God to witness, and finally they began to hit the trail, and one fellow says: "I don't do it, but I know Smith did." Smith says: "I know I did, and so did you," and before we got through with them, they were all owning up.

But from that time on, they began praying and taking care of their peach trees, because they were convinced that that was the proper policy, and the only way in which they could recover the market that they had lost. So in that distant time, there was begun the laying of the foundation for that public opinion in California which has finally put standardizing of the fruit pack through the legislature and given it a place in the statutes of the State

OUR APRIL OFFER

Pair of Towels—FREE
2 Cotton Crash—17x36

3 lbs. 3 QUALITY Coffee $1

Freshly Roasted, Deliciously Flavored. So Good You Will Always Want It.

Dollar Bill Brings Both, Parcel Post Prepaid.

Two Million Satisfied Customers in U. S.

Grand Union Tea Co. 46 Years in the Business.

Oakland. Fresno. Los Angeles.
Agents Wanted.

WHY YOU CAN DEPEND ON THE ADVERTISEMENTS in Orchard and Farm

A strict censorship is imposed on all advertising intended for publication in Orchard and Farm.

Advertisers must satisfy the publishers that they are capable and willing to carry out their published statements.

Advertisements must not only avoid extravagant phrases, but their context must be free of anything offensive to any member of the family.

Liquor advertisements are barred, as are also those of habit-forming narcotics.

An effort is made to keep the advertising columns as free from reproach as the editorial columns.

Advertisers in Orchard and Farm are deserving of your complete confidence. Though they may be unknown to you, you need have no hesitancy in trusting them.

Write for Advertising Rates—Address Orchard and Farm.
Examiner Building, Los Angeles, Cal.

At the Davis Demonstration
April 17-20 Inclusive

AT this mammoth and elaborate Educational Exhibition the ranchers of California will have the opportunity to witness the greatest tractor and agricultural implement demonstration ever held on the Pacific Coast.

AVERY TRACTORS in the following sizes will demonstrate their superiority in all classes of farm work: 5-10 H. P., 8-16 H. P., 12-25 H. P., 18-36 H. P., 25-50 H. P. and 40-80 H. P., plowing, disking, harrowing, subsoiling, checking, ditching, etc., also, the AVERY MOTOR PLANTER CULTIVATOR will be shown for the first time in public exhibition in the West. This motor implement plants and cultivates beans, beets, cotton, corn and all row crops.

AVERY BEAN AND RICE THRESHER will be in operation in main tent.

LOOK FOR THE BULLDOG

F. H. POSS CO., Distributors
1719 Main Street
San Francisco

FARMERS' CLASSIFIED MARKET PLACE

Our rate for classified advertisements on the Market Place pages is 3 cents per word for each insertion. Advertisements must reach us before the 23d of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

REAL ESTATE

Potato and Bean Farmers Lands That Can Be Irrigated Mean Success in Dry Years

Here's your chance to share in the enormous profits that are going to be made on California lands that can be irrigated this year.

WE FURNISH THE LAND and give you a chance to pay for it from your crops. Many of our farmers the past season have harvested crops of potatoes, beans and barley that will more than pay for the land they are grown on this year. Call and let us show you how our land will pay for itself in a short time, although you have 10 years. Good school, cheap water, good town. Write or call today. CHOWCHILLA COLONIZATION CO., 724 Title Insurance Bldg., Los Angeles, Cal.

NO PAYMENT DOWN.
FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS," AT ORLAND, CAL.; WATER FURNISHED BY UNCLE SAM; WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS; NO BETTER SOIL FOR ALFALFA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET, "ORLAND FARMS."
F. D. BURR CO.,
219 MONTGOMERY ST.,
SAN FRANCISCO, CAL.

FOR SALE—70 ACRES PATENTED LAND IN CALAVERAS COUNTY. Thirty acres fenced; 300 bearing apple trees; free water for garden, fruit trees and alfalfa; no drought here. Thousands of acres of free unfenced Government land for cattle. Owner dead, heir cannot look after property. Price $2500. Address C. A. Berry, Mokelumne Hill, Cal.

20 ACRES choicest Fig, Grape and Orange land. A-1 drainage. Surrounded by hills. Underlaid with water. 4 miles from Clovis, Fresno County. $2000—terms.
Whitney & Whitney, Berkeley, Calif.
2125 Bonar street. Phone Berkeley 687.
Also team heavy horses, wagons, harness, etc.

FOR SALE—240 acres of timber land, situated in Section 14, Township 24 N. R. 3 East, M. D. M.; contains about 4,800,000 feet of millable timber, also fine summer range for stock; price, $15 per acre. Joseph Colman, De Sabla, Cal.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information address A. J. Smith, Groveland, Tuolumne County, California.

BUY, SELL OR TRADE farms, city property and merchandise stocks. Give full particulars and tell me what you have and what you want. D. J. Forbes, 153½ Grand Ave., Portland, Ore.

WILL SELL 10-acre apple tract in Modoc county, Cal. Just coming into bearing; gathered 10 boxes this year, fine apples. Address J. Valier, Box 193, Wilmington, Cal. Phone 2432.

SANTA CLARA VALLEY—Near Stanford University; 20 acres garden soil, 3 acres pears; house, barn, pumping plant, artesian well; $8000, one-half cash. A. C. Hobart, Palo Alto, Cal.

FOR SALE—40 acres improved ranch, ½ mile northwest of Tulare; 23 head dairy stock, implements, 200 chickens, 4 head horses, furniture; price, $15,000. S. E. Kline, phone 27F11. Route A, Box 185, Tulare, Cal.

FOR SALE—40-ACRE IMPROVED RANCH, ½ mile northwest of Tulare limits; 4 head horses, wagon, implements, 23 cows, 200 chickens. Mrs. S. E. Kline, Route A, Box 185, Tulare, Cal.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information address A. J. Smith, Groveland, Tuolumne County, California.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

FOR SALE—20 acres in grain and alfalfa; water $1 per acre; ½ mile from town; on State Highway; well improved; price $7000. Clarence Lincker, Agent, Palermo, Cal.

FOR SALE, AT A BARGAIN—6000 acres grazing land near Newman, Stanislaus County. Will sell all or part. Address Box 805, Orchard and Farm.

140-ACRE IMPROVED El Dorado County ranch, $20 an acre; ½ cash, balance time or trade. Address Box 811, care Orchard and Farm, Examiner Bldg., Los Angeles, Cal.

TEN ACRES FOR SALE—5 miles from Porterville, Cal.; fine olive land. Address A. O. Haslehurt, Bakersfield, Cal.

FOR SALE OR RENT—A 235-acre farm, five miles from town. For particulars write Thomas Geach, Grass Valley, Cal.

FOR SALE—Acre lot in Empire, all in young trees. Address Box 73, Empire, Cal.

REAL ESTATE

EIGHT-ACRE SANVINA RANCH for sale, near Sebastopol, one-eighth of a mile from Petaluma and Santa Rosa electric R. R. shipping station; 4 acres in full bearing blackberries, 3 acres loganberries, 300 full bearing assorted fruit trees, 5-room house, good water, barn, 5 chicken houses, chickens, cow, 2 horses, 2 wagons; all in good condition; very reasonable. For particulars write owner, F. J. Bulla, Sebastopol, R. 3, Box 149.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Texas.

RETIRING—Will sell thirty-six hundred acres, Tehama county, twenty-five dollars an acre; twenty thousand dollars first payment, balance easy terms; fine proposition; good soil and climate; well watered, well fenced; suitable for sheep, cattle, hogs or combination stock, grain, fruit and alfalfa; located twenty miles west of Red Bluff in prosperous community. H. E. Wolcott, Red Bluff, Cal.

FOR SALE—60 ACRES dairy ranch on Coquille river, 8 miles to new condensery; cheese and butter plants handy; 2 barns, some orchard, 30 acres of bottom land, green grass and spring water year around; a bargain; $5000, ½ cash. Address Box 186, Bandon, Ore.

FOR SALE—Stock ranch, Northern California, 320 acres; 159 in cultivation, 290 tillable; open range. Six-room house, large barn, furniture, stock and tools included. S. E. Hummel, Tecnor, Cal.

STOCK RANCH FOR SALE—Sixty acres alfalfa, ninety pasture and grain land; good buildings, ditch, water well, lots shade. Fine house in Los Angeles for exchange. Geo. R. Wilson, Fresno, Cal.

GOOD HOG OR DAIRY RANCH—200 acres; 70 acres alfalfa land; good buildings, running water; near town. M. Funk, Etna Mills, Cal.

SAN JOAQUIN VALLEY LANDS

FOR SALE—80 ACRES FINE TREE OR GRAPE LAND. One mile from railroad in Turlock Irrigation District. Water ditch on land. $55 per acre, which is only half value. Can be planted to beans this year; crop should pay half the price asked for land. Write or see O. W. Lehmer, Merced, Cal.

FARMS WANTED

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

REAL ESTATE FOR EXCHANGE

60 ACRES—Unimproved; on Gulf Coast; citrus fruit and pecan belt; running water; mild winters. Desire to exchange for unimproved in citrus section of California. Send trades. Oscar Elder, Oakdale, Perry County, Ind.

WILL EXCHANGE 40 acres or 80 acres or all of 120 acres, 20 miles of Portland, Oregon, for California acreage. Will assume mortgage. Box 714, 520 Call Bldg., San Francisco.

WE EXCHANGE Real Estate—Johnson & Temple, San Jose, Cal.

MONEY TO LOAN—Real Estate

ANY AMOUNT ON COUNTRY PROPERTY. Bank rates. Write for particulars. We specialize on large country loans.
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WILL MANAGE RANCH—A strong, experienced and reliable Scotchman desires a position as manager of a ranch. He has had eight years' experience in California and understands breeding and caring for the various lines of livestock; also field crops and orcharding. He is a man of family and a naturalized American citizen. Address Richard Duncan, 1037 W. 43rd St., Los Angeles, Cal.

MAN AND WIFE want job to take care of ranch, or cook. No objection to woods; 3 children, 7-13. Box 152, Davis, Cal.

AGENTS, SALESMEN—Wanted

WANTED—Agents to represent the NuBone Corset Company. Write for plan and style book. Not sold in stores. 222 West Ninth St., Los Angeles, Cal.

HIDES, FURS, PELTS.

NOTICE TO TRAPPERS—Our raw fur department is now open for shipments. We pay the highest prices for all kinds of furs, including rabbit skins. Send for price list. Seattle Fur Co., 1719 San Pablo Ave., Oakland, Cal.

FIELD SEEDS, GARDEN STOCK

GIANT "MARROW" CABBAGE'S official yield was eighty edible tons per acre. Much hardier, richer than kale; its stalk (trunk)—unlike kale's, being richest part—entirely edible; its "marrow," best egg, rabbit and butter-making "greens" known. (See full description in December issue.) Only stock of its guaranteed, pedigreed seeds (limited). Some plants ten feet high; 500 such seeds, 25c; five packets, $1; twelve (acre supply), $2. Other garden rarities. Photos, suggestions, samples, for return postage. E. E. Martin, Guaranteeing Seedsman, B-4, Bangor, Washington. NEVER RISK UNGUARANTEED SEEDS, FELLOW FARMERS. (Will exchange this seed by parcel post for fresh walnuts, almonds, olives, figs, dates, raisins, dried apricots, peaches, pears, prunes, honey.)

NORTHERN FROST-RESISTING BEANS—Plant much earlier. "EARLIRIPE STRINGLESS BUSH WAX"—perfect for canning; richest flavored as "Drys;" white, purple eye. "FAVA," cream colored, gigantic; plant single seeds in potato rows, between hills; best soil enricher; vigorous bush. "SCARLET RUNNERS," half-grown pods afford EARLIEST "STRINGS." Packets, 10c; all three, 25c, postpaid. Dozen other rare, PRACTICAL varieties. Samples for postage. E. E. Martin, Guaranteeing Seedsman, B-4, Bangor, Washington.

ALFALFA PLANTERS, get this booklet, "Important Facts About Alfalfa Seed; the Prospective Alfalfa Growers Should Know." Read it before purchasing your alfalfa seed. It will save you money and insure you better seed. We handle all varieties of alfalfa seed and can supply you with seed best suited to your conditions. Write today for free booklet, samples and prices, describing your soil and moisture conditions. Bomberger Seed Co., Dept. F, Modesto, Cal.

LATEST WAR GARDEN NOVELTY—"PURPLE PERFECTION" POTATO—Salad specialty; solid purple skin, white fleshed; super-early, resists ordinary frosts; demands CONTINUOUS GROWTH, assuring two prolific crops in mild climates; avoids "keeping-over" worries. Sample, 10c, pound 35c, three pounds 90c. E. E. Martin, Guaranteeing Seedsman, B-4, Bangor, Wash.

ALFALFA SEED—We have been growing and distributing this seed for forty years. We make it a specialty, both retail and wholesale. Tell us the nature of your soil and we will do the rest. Write for samples, prices, etc. V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal. Make our seed your seed.

HEADQUARTERS FOR ALFALFA and Sudan Grass Seed. Our field seeds are cleaned to the highest standard of purity. When buying from us you are not paying for chaff or weed seeds. Write for prices and samples. Valley Seed Company, 503-510 J Street, Sacramento, Cal.

LEGUME BACTERIA for alfalfa and all clovers. Don't risk failure by neglecting to inoculate. Price, $1.25 per bottle, postpaid (enough for 50 to 100 pounds of seed); prepared by a reputable eastern laboratory. Ralph Waldo Elden, Central Point, Ore.

SEED GRAIN, THRESHING Machine and Harvester Screenings Wanted—Cash paid for large or small quantities. Mail samples on which we will quote. Mercantile & Warehouse Co., Fifth and Poplar Sts., Oakland, Cal.

FOR SALE—Pure bred red dwarf milo maize for seed; yields 3 tons per acre. Price, 50 lbs. and over, 5c per lb.; ton lots on application. Chas. I. Long, Route 1, Orland, Cal.

ALFALFA SEED—New crop; home-grown; guaranteed clean. Sample and prices on application. Freight prepaid to your nearest railway station. A. F. Scheidecker, Zamora, Yolo County, Cal.

STRICTLY FANCY SEEDS—Alfalfa, all Clovers and Grasses. Free Sweet Clover bulletins. Ralph Waldo Elden, Central Point, Ore.

CARNEAUX PIGEONS—Buy a few pair of breeders that produce more fat squabs than the average. Investigate now. Riverside Squabry, Riverside, Cal.

GREATEST MONEY-MAKERS—Hardy Hybrid Alfalfa, gets thicker, spreads with age. Everlasting cropper. Tester. J. L. Lawson, San Jose, Cal.

FOR SALE—Direct from producer, new crop alfalfa seed; test shows this seed free from dodder. Address A. V. Cain, R. F. D. 1, Arbuckle, Cal.

NEW HYBRIDIZED POTATOES—50 varieties seed, only 15 cents packet. Order immediately. J. L. Lawson, San Jose, Cal.

GUARANTEED SEEDS

"GOLDEN POTLACH" OR "FULL DINNER" (Bush) Pea; "beefsteak substitute," many claim; largest, tenderest, greenest, sweetest. Ripe peas, soaked, properly prepared equal "canned" product for table. Prolific, hardy. Only guaranteed Coast supply (limited). Packets only 10c; dozen, $1. (See detailed description, Page 21, March issue.) Earliest ripening beans. E. E. Martin, Guaranteeing Seedsman, B-4, Bangor, Wash.

FARM LANDS, HOMESTEADS

CITIZENS LOCATED on Government land, $150; snap. Box 23, Cloverdale, Cal.

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$1000 per acre growing the ALTON IMPROVED RED RASPBERRY; pamphlet free. Increase the yield of all your crops from 25 to 40 per cent; grow from 200 to 500 bushels of potatoes, 300 to 600 bushels of onions, 20 to 50 bushels of wheat per acre; all other crops in proportion. My free booklet tells you how. H. A. Pinegar, Wellington, Utah.

FOR SALE—CITRUS TREES—CHOICE STOCK; YOUNG AND THRIFTY SELECTED BUDS. VALENCIAS AND WASHINGTON NAVEL, EUREKA AND RIALTO SEEDLESS LEMON, MARSH SEEDLESS GRAPEFRUIT; ALSO YOUNG SEEDLINGS. W. W. BURNS, 531 SECURITY BLDG., LOS ANGELES. F3110.

100,000 SOUR ORANGE SEED, bed trees, 50,000 sweet. Choice new stock; trees lined out next spring, sure to hit a high market. Better plant at least a few thousand. East Colorado st. and Berkeley ave., Pasadena, Cal. Southland Nurseries.

CLOSING OUT—15,000 choice orange and lemon trees for sale. Marsh seedless grapefruit, Eureka lemons, Washington navels and Valencias. Two-year-old buds, 3 cents each, or in hundred lots, 25 cents. F. A. Anderson, Elsinore, Cal.

BEST CITRUS TREES grown from the best buds, from the best bearing trees in the famous East Whittier district. Thousands for 1918 planting. R. R. Morris, R. F. D. 1, Whittier, Cal.

SWEET POTATO PLANTS—New varieties sweet potato plants: Nancy Hall, Porto Rico, Early Triumph, $7.50 per thousand, $1.00 per hundred. April and May delivery. J. BRASWELL, Lindsay, Cal.

PLANT RHUBARB NOW—12 plants furnish all sauce and pies for big family free; 8 plants, $1; one acre has produced $1100 first year. A. M. Jones, 1258 Cahuenga street, Hollywood, Calif.

RHUBARB—$1127 from one acre. A crop every month of the year. Write to me and I will tell you how you can do as well. J. M. Stone, Lodi, Cal. Route 4.

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GLADIOLUS BULBS that will bloom. Mixture of new named varieties, all colors. Dozen, 40 cents. Beautiful Pendleton Dozen, 60 cents. Post free. Cash with order. W. H. Kingsley, Hayward, Cal.

STRAWBERRY PLANTS

STRAWBERRY PLANTS — Everbearing strong, northern grown. Americus $1.50 per 100; $3 per 250. F. I. Moffett, Ellensburg, Wash.

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ALL sizes of pipe and screw casings, both new and second-hand, dipped and undipped; guaranteed. Prices right. Shester Pipe Works, 304 Howard st., San Francisco.

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KNOX — Spreckels Bldg., San Francisco. Debts collected everywhere; no charge unless successful.

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TO REDUCE the high cost of living send for our Wholesale to Consumer. Smith's Cash Store, 106 Clay St., San Francisco.

FARMERS' CLASSIFIED MARKET PLACE—Continued

POULTRY.

VODDEN'S BARRED PLYMOUTH ROCKS

Winners at California's leading shows and wonderful layers. If it's Barred Rocks you want, get in touch with me right away. I have bred them exclusively for twenty years. Yes, we are booking orders for hatching eggs, which will start you right. Catalog free. Vodden's Rockery, Los Gatos, Cal.

QUALITY BRED CHICKS—Thoroughbred S. C. White Leghorns bred to lay; not simply chicks, but stock that lays and pays. I hatch from my own yards exclusively—$500 to anyone that can prove otherwise. My ideal stone hatchery enables me to hatch perfect chicks during extreme temperatures; and all my chicks are shipped in the Dobbel Safety Boxes, which insure proper ventilation and safe delivery. Quality and satisfaction guaranteed. Send for my folder. F. W. Dobbel, Buena Vista Poultry Yards, Box 173-O, Sonoma, Cal.

FOR SALE—300,000 S. C. White Leghorn chicks during April, May and June; heaviest laying Hoganized stock only. Broilers in ten weeks; pullets lay at five months. We guarantee safe arrival of all chicks to destination; you pay only for chicks received in good condition. Shipped safely anywhere west of the Rockies. Price, $10 per 100; $95 per 1000. No money in advance; pay on delivery. Finest hatchery in the world. Established over twenty years. Must Hatch Incubator Co., 405 Seventh st., Petaluma, Cal.

FINEST HATCHERY IN THE WORLD—Baby chicks, Rhode Island Reds and White Leghorns, settings, 100, 1000 hatched right in our $60,000 brick and concrete hatchery from our quality heavy layers; reasonable prices; stock hatching eggs. Pebbleside Poultry Farm, Sunnyvale, California.

THOROUGHBRED BARRED ROCKS EXCLUSIVELY—Hen record, 190 eggs in 10 months, trapnested, pedigreed matings. Pen one $2.50, two $1.50 per 15 eggs; baby chicks, March and April, 25c, limited number. Warren Poultry Yards, 38 Little Delmas Ave., San Jose, Cal.

BABY CHICKS — All good, strong youngsters. Hatches every week; White and Brown Leghorns, R. I. Reds, Barred Rocks, Black Minorcas, Anconas. Also hatching eggs. Write for circular. J. H. Stubbe, Campbell Poultry Ranch, Campbell, Cal.

WHITE CRESTED BLACK POLISH and Golden Laced Polish exclusively. Home of quality and beauty. Write me your wants for the show room and breeding pen. Eggs, $2.00 for 15; $3.50 for 30. Mark Cutts, Dundee, Minn.

FOR SALE—Guaranteed all pullets day old. Demand never so great as this year owing to high cost of feed. Raise only producers. The greatest hatchery on earth. Established 1912. EUREKA HATCHERY, 3406 South Vermont, Los Angeles, Cal.

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WALKER'S WHITE WONDERS—Winners wherever shown. Clean sweep State Fair, State show past season. White Rocks and White Leghorns. Eggs, $3 setting. Claude Walker, Coalinga, California.

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FOR SALE—Thompkins' Rhode Island Red cockerels, year old; one single, two rose combs; big value at five dollars each. A. B. WINSLOW, 1118 Fifth et., San Bernardino.

CERES JUBILEE HATCHERY and poultry yards. S. C. White Leghorn baby chicks from our yards of 1800 breeders; choice cocks and cockerels for sale. Address H. L. Brown, Ceres, Cal.

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RHODE ISLAND REDS, Lester Tompkins strain; noted winners; exceptionally heavy layers; mating list free. Albert Sly, 1642 Middleton Place, Los Angeles.

TRAPNESTED—White and Buff Leghorns; great winners and layers. Eggs, chicks stock. Arthur H. Schroeder, Mayfield, Cal.

POULTRY

Big Profit Now Raising Our 200-290 Egg Utility

Or Prize Leghorns, Wyandottes, Minorcas, Rocks, Reds, Anconas, Orpingtons, Brahmas, Ducks, Thousands of chicks, eggs weekly, reduced price February. Laying pullets, hens. Males, half price. Many repeat orders year after year. Hundreds of customers making money. One cleared $305 on 48 hens, another $617 on 110 last year.

C. BEESON,
143 North Chester Ave., Pasadena, Cal.

BABY CHIX

Hoganized Stock, White Leghorns, Anconas and White Rocks.

"THE MAN WITH THE GOODS."

C. W. Norton
Box 1, East and Grand Ave., Pomona, Cal.

R. I. RED BABY CHIX,
My Specialty.
Heavy layers mated to produce heavy layers. Several breeds. Order in advance.
Denton Poultry Yards,
Campbell,
California.

MODEL POULTRY FARM—White Leghorn Specialists. Established 1903. We are now booking orders for 1918 delivery of hatching eggs and baby chicks from our bred-to-lay stock. We also have some fine breeding cockerels for sale. Our prices are right. W. C. Smith, Prop., Corning, Cal.

THOROUGHBRED BARRED ROCKS EXCLUSIVELY—Hen record, 190 eggs in 10 months, trapnested, pedigreed matings. Pen one $2.50, two $1.50 per 15 eggs; baby chicks, March and April, 25c, limited number. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, Cal.

FOR SALE—Anconas the most popular breed today. "There's a reason." Small eaters and heavy layers of large eggs. Five breeding pens. Eggs of guaranteed fertility, $1 per 15; $6 per $100. A. E. Nelson, El Monte, Cal.

BABY CHICKS—All good, strong youngsters. Hatches every week, White, Brown and Buff Leghorns, R. I. Reds, Barred Rocks, Black Minorcas, Anconas. Also hatching eggs. Write for circular. J. H. Stubbe, Campbell Poultry Ranch, Campbell, Calif.

WHITE ROCK COCKERELS, $3 each; chix from thoroughbred White Leghorns; White Rocks also; a cross between these breeds for winter layers and early broilers. "Quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

HATCHING EGGS AND CHICKS—Bred for 15 years for heavy laying and standard requirements. Trapnested and Hoganized—McFarlane strain. Eggs, $1.50 per setting; $6 per 100; chicks, $12 per 100. A. Worel, R. D. 3, Napa, Cal.

HATCHING EGGS—Black Cochin, Bantam, Black Jap Games, Silver, Golden and Ringneck Pheasants. Prices right; quality considered. Stock for sale reasonable. C. A. Potts, 1218 105th Ave., Oakland, Cal.

S. C. BROWN AND BLACK LEGHORNS—Everlasting layers. Winners at Oregon State Show, Eugene, Medford, etc. Hatching eggs, $2 per 15; $3.50 per 30; express paid. C. H. A. Dickerson, Medford, Ore.

RHODE ISLAND REDS, rose and single comb; breeding stock; hatching eggs from trap-nested heavy-laying prize stock. Wm. Larm, 3915 39th Ave., Upper Fruitvale, Cal.

EGGS FOR HATCHING—Silver and Golden Campines from heavy layers, $2.00 per setting; Golden Antiers, $1.00. M. Yehl, Route 1, Box 11C, Livermore, Cal.

S. C. RHODE ISLAND RED EGGS—Choice stock, settings $1.25. Pekin duck eggs, settings $1.50. Mrs. W. E. Court, Lathrop, Route 1, Cal.

SINGLE COMB Rhode Island Red hatching eggs from heavy laying, thoroughbred stock; $1.50 per 15; chicks, 15c. F. Bruns, Route 1, Box 484, Berkeley, Cal.

WHITE LEGHORN EGGS from trapnested stock; $1.50 per 15; $3.50 per 50; $6 per 100. Baby chicks, $10 per 100. Henry Tarratt, Corning, Cal.

BUFF ORPINGTON Chicks; $15 per 100, May delivery. Order now. Mating list. The Ferris Ranch, Route 2, Box A, Pomona, Cal.

CHICKS and hatching eggs from selected Hoganized stock. White and Buff Leghorns, Buff Minorcas, B. P. Rocks. S. Martina, R. 2, Box 627, Santa Cruz, Cal.

FREE BOOK—"CHICKENS from Shell to Market," on application to Couleon Co., Petaluma, Cal.

S. C. R. I. EGGS, $1.50 setting. Hewitt & Hewitt, Dixon, Cal.

POULTRY.

BABY CHICKS

Anconas, $14 per 100; Barred Rocks, $15; Black Minorcas, $16; Brown Leghorns, $12; Buff Leghorns, $14; R. I. Reds, $14; White Minorcas, $19; Buff Orpingtons, $19; White Orpingtons No. 1, $30; No. 2, $19; White Rocks, $19; White Wyandottes, $19; Quality White Leghorns, $12; Utility White Leghorns, $10. Order direct from these prices.

Incubator catalogue mailed free.

D. E. DOKE
743 South Los Angeles St., Los Angeles, Cal.

WE are specialists in the production of high-grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strains of America's choicest Leghorns fill our breeding pens and my personal attention is given to all details, assuring each customer of highest quality stock. Our catalog is free. It fully describes the stock, eggs and chicks, containing photos showing the ideal conditions and methods used to make our Baby Chicks worth having. A postal mailed today will bring it to you. The Vineburg Hatchery, F. C. Rhode, Prop., Vineburg, Cal.

BABY CHIX AND HATCHING EGGS from our own large, vigorous stock, carefully Hoganized and bred for heavy egg production. Barred Rocks, R. I. Reds, Anconas, 14c; week-old chix, 16c; 2 weeks old, 20c; Leghorns, 12c, 14c, 18c; eggs, $1.50 for 15; $6 for 100. Downey Hatchery, Downey, Cal.

BABY CHICKS—Leading varieties. We guarantee safe arrival and full count; strong, vigorous chicks from the finest flocks of free range stock in this country. 1918 Price List and instructions on care of baby chicks, if you mention this paper. Lasher's Hatchery, Petaluma, Cal.

ANCONALAND—Anconas pay with high-priced feed. Get pure bred stock and start right. Baby chicks hatched on ranch from eggs own heavy-laying hens, $15 per 100. Hatchings eggs, $6 per 100. Eggs from best pens, $2 per 15. W. J. Stone, 341 North Brand Blvd., Glendale, Cal.

FOR SALE—We guarantee full count of live chicks that will please you. We hatch from heavy layers selected by the Hogan system. Thoroughbred White Leghorns exclusively. Reasonable prices. Write for price list and book your order early. White Leghorn Hatchery Co., Pomona, Cal.

WHITE LEGHORN CHICKS—Not too late to order now for March and April hatches, but don't delay. For best utility stock, the kind noted for their superior egg-laying qualities, from Carl Stange, Poultry Ranch and Hatchery, 1408 Silver Ave., San Francisco, Cal.

BABY CHICKS from my carefully selected thoroughbred flock of S. C. White Leghorns, $12.00 per 100, $110.00 per 1000, only eggs from my own fully matured hens used in my incubators. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

HATCHING EGGS—Black Cochin, Bantam, Black Jap Games, Silver, Golden and Ringneck Pheasants. Prices right, quality considered. C. A. POTTS, 1218 105th ave., Oakland, Cal. Stock for sale reasonable.

PETALUMA HATCHERY—Can ship day old chicks to points reached in three days. Why not have the best? We challenge the hen. Free circular. L. W. Clark, Petaluma, Calif

BLUE ANDALUSIAN, Blue Orpington and Sheppard's Ancona eggs. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

CHIX—Buff, Brown and White Leghorns (Barron Strain), Anconas, Minorcas, Barred Rocks, Reds, Orpingtons and Silver Campines. Enoch Crewe, Seabright, Cal.

"EASTMAN'S Bred-to-Lay" Hoganized, trapnested Barred Plymouth Rocks. APRIL CHICKS. Eggs. Fairmead Poultry Farm, Fairmead, Cal.

BABY CHICKS (White Leghorns)—Shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, Cal.

FAMOUS FERRIS WHITE LEGHORNS—Standards of quality. Guaranteed eggs and chicks at let-live prices. Hanscom, Escondido, Cal.

WHITE LEGHORN chicks and eggs; best strains, low prices, large plant. Free catalogue and price list. Newton Poultry Farm, Los Gatos, Cal.

BABY CHICKS. White Leghorn and R. I. Reds. Hatches every week. Any quantity. Only first-class chicks sent. Write for prices. E. W. Ohlen, Campbell, Cal.

BLUE RIBBON White Wyandottes, cockerels, pullets, eggs for hatching. R. W. Staweteki, Route B, Box 241, San Jose, Cal.

POULTRY

BABY CHICKS—
BABY DUCKS—
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BABY TURKEYS—
All popular varieties.

Our chicks are supplied by experienced hatchers and reliable breeders. A dependable supply of the very best. We ship everywhere.

Specialists in high-class poultry, pigeons, bantams, ducks, geese, turkeys, Guineas, pheasants, peafowl, rabbits, dogs, cats, Guinea pigs, canaries parrots and pets of all kinds. Our facilities and experience enable us to supply most any requirement. Correspondence invited.

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EVERYTHING IN HAIR, FUR AND FEATHERS.
FANCIERS' EXCHANGE,
640 South Main St.

Black Leghorns

New breed on the Pacific Coast. Very fine line of strong egg producers. Line-bred, very vigorous, mature early; fine winter layers. Catalog and mating list free. Hatching eggs, $2 for 15, $8 for 100. Prices on trios and pens on request. Pine Grove Ranch, Route 1, Redondo Beach, Cal.

SPRING CHICKS—We are booking orders now. S. C. White Leghorns; only selected and fully matured stock that is bred to lay used in the breeding pens, which assures strong and vigorous chicks; $12.50 per 100; $110 per 1000. H. A. Schlotthauer, Exeter, Cal., Route A.

GAPE CURE AND WHITE DIARRHOEA CURE—National Gape Cure Company manufactures and sells nothing but Gape Cure and White Diarrhoea Cure. Fully guaranteed. 25 cents each. Liberal terms to agents. Send for literature. Dr. J. M. Hardin, Mgr., Brandenburg, Ky.

ANCONALAND—Anconas pay with high-priced feed. High-scoring, pure-bred Ancona cockerels for sale. Booking orders for baby chicks, hatched on ranch. Order now and get them when you want them. Eggs for hatching. Prices reasonable. W. J. Stone, 341 N. Branch Blvd., Glendale, Cal.

HUDSON'S WHITE LEGHORNS averaged 202 eggs in Oregon Agricultural College contest. We use trapnests. Fifteen eggs, $2. Circular. Hudson Ranch, Escondido, Cal.

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GOLD NUGGET STRAIN GIANT BRONZE TURKEYS again prove their superiority by winning at three great shows. California State Fair, 1917; Texas State Fair, 1917; Los Angeles, January, 1918. Gold Special Sweepstakes at all three shows. Each judge pronounced them the best in the show, all breeds competing.

The first prize tom at Madison Square, N. Y., 1915, and at the great Chicago Show, 1917, is at head of one of my flocks this year. Highest honors at America's two greatest shows.

Large turkeys can be raised at practically the same cost as small ones. My toms will give you an increased weight of five pounds the first year. Either stock or eggs will give you vitality, size and beauty. Address all communications to J. Will Blackman, 607 East Third St., Los Angeles, Cal.

WHITE HOLLAND, BOURBON RED — Choice stock for sale; eggs 50 cents, $5 per dozen. Bronze turkey eggs, 35 cents. Turkeys in separate wire-covered yards. Range separately daily. Eggs, parcel post prepaid. Mrs. B. Hocking, Guasti, Cal. Winner of firsts and champions, World's Fair, San Francisco.

BRONZE, BLACK, NARRAGANSETT, White, Slate, Bourbon Red and Buff breeding turkeys. From the finest flocks in America. Prize winners at the leading shows. Special prices until Dec. 1. Any sized orders filled. Write immediately for prices. F. A. Clark, Freeport, Ohio.

BOURBON RED TURKEYS—Winners Panama-Pacific, California and Arizona State Fairs, Los Angeles. Settings, small incubator lots; poults, mating list. The Ferris Ranch, Route 2, Box A, Pomona, Cal.

FOR SALE—Bronze turkey eggs, 15 cents each; 25 cents extra per setting when packed for shipping. Mrs. J. B. Wener, Moneta, Cal.

DUCKS

200 EGG STRAIN Pure White Indian Runner Ducks. I am now taking orders for eggs for hatching for immediate delivery. No baby ducks or old stock for sale. Prices $2 per 12 eggs; $3.50 per 25 eggs; $8.50 per 50 eggs. F. W. McCauley, El Portal, Cal.

DUCK EGGS FOR HATCHING, from pure white Muscovies and from black Muscovies; 10 cents each. Ducklings to order. H. P. Both, Route 1, Box 238, Oakland, Cal.

INCUBATORS, Poultry Supplies

Reid's Poultry Paste

For body lice, scaly leg, head lice, etc. One application guaranteed to keep lice off birds for six months or money refunded. No waste. Easy to apply. At your dealers, 25 and 50 cents, or mailed prepaid on receipt of price. D. A. Reid, Huntington Park, Cal.

FARMERS' CLASSIFIED MARKET PLACE—Continued

RABBITS AND PIGEONS

"SCIENTIFIC FUR FARMING." A profitable, spare-time business, good for $1500 per year and more. RAISE STOCK FOR US—We buy all you raise. We pay you the highest market prices and furnish perfect breeding stock. GO INTO BUSINESS FOR YOURSELF. Our booklet and details mailed for 10 cents.
Dept. X,
LOS ANGELES FUR FARM,
C. E. Sherman J. M. Sherman
2669 N. Griffin Ave.,
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CALDWELL'S RELIABLE RABBIT REMEDIES, sold under a guarantee to CURE or money refunded. Caldwell's Snuffle Remedy, 75c; Caldwell's Ear Canker Remedy, 35c; Caldwell's Slobber Remedy, 35c; Caldwell's Rabbit Tonic, 55c. Free list of other remedies and supplies. Caldwell's Rabbit Farm, 2525 San Fernando Blvd., Los Angeles.

YOUR SPECIAL OPPORTUNITY! "THE TWENTIETH CENTURY RABBIT GUIDE," by E. A. Samuelson, a rabbit breeder for 12 years. Most certainly does supply the practical information you need. Finely illustrated. SATISFIES. Price, 50c. Free circular. Sanford's Rabbit Farm, 3732 Midvale, Oakland, Cal.

SELL US YOUR NEW ZEALAND RABBITS—We are in the market at all times for healthy, utility New Zealand Rabbits, weighing 5 pounds or more, and pay as high as $5 each for them. Send for buying price list. Gilmore Rabbit Farm, Santa Barbara, Cal.

LOOK! "THE TWENTIETH CENTURY RABBIT GUIDE" by E. A. Samuelson, a rabbit breeder for 12 years, supplies the practical information you need. Finely illustrated. Satisfies. Price 50c. Free circular. Sanford's Rabbit Farm, 3732 Midvale ave., Oakland, Cal.

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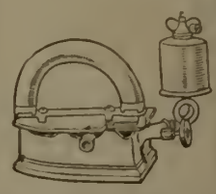

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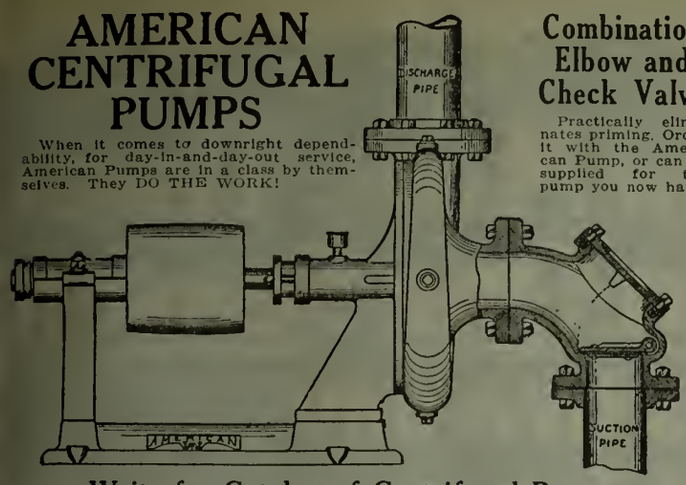

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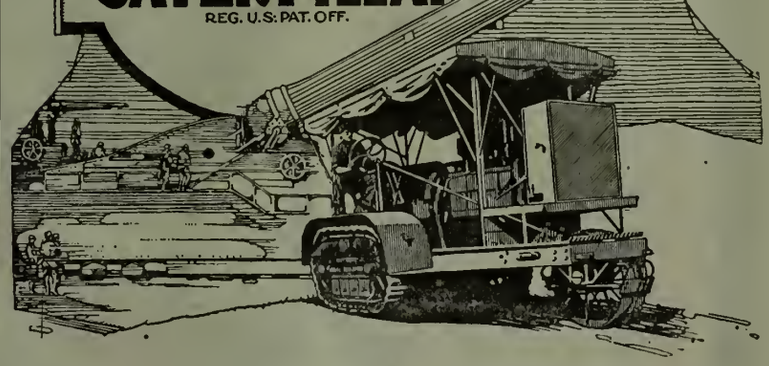

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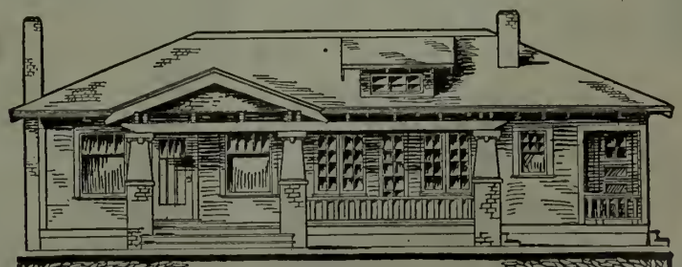

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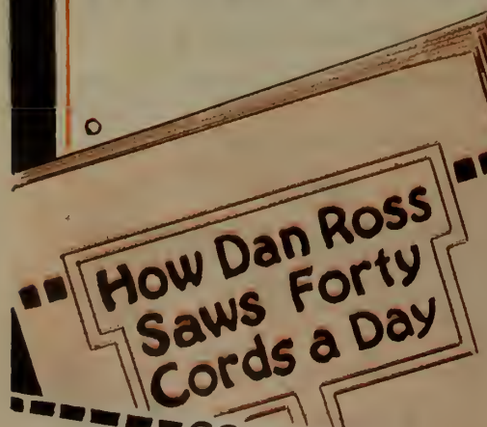

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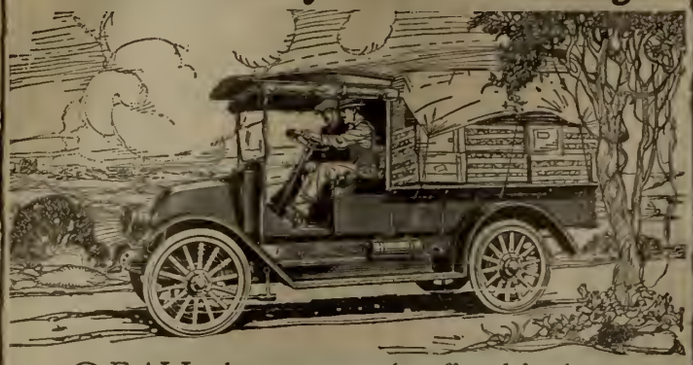

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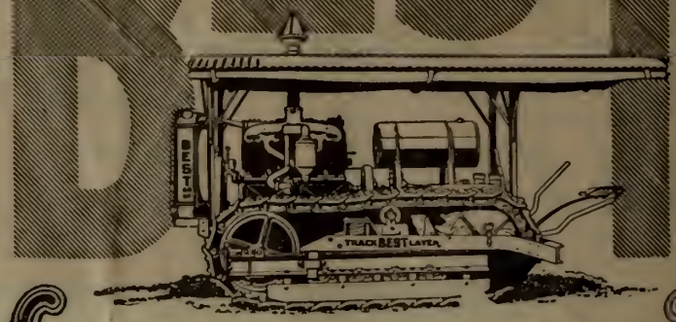

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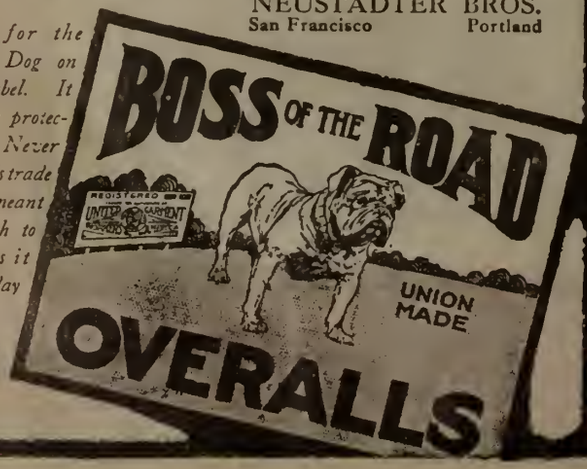

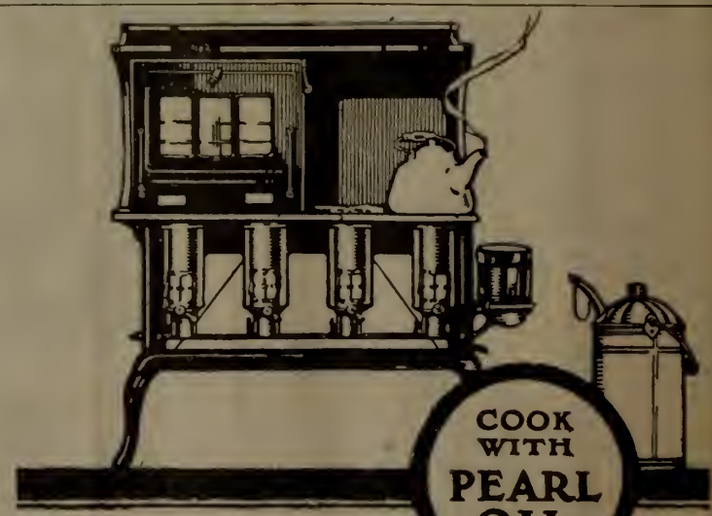

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NEW PERFECTION OIL COOK-STOVE

STANDARD OIL COMPANY
(California)

ORCHARD and FARM

Vol XXX. LOS ANGELES, CALIFORNIA, MAY, 1918. No. 5

A War Talk to Farmers

By D. O. Lively,
Director of the Agriculture Division, Twelfth Federal Reserve District.

IT HAS been the habit of a certain type of speakers in talking to the farmer to act as if he was a class apart from the rest of the country. Now, the farmer is the backbone of the Nation. The cultivators of the soil comprise a larger number of workers than any other industry. The history of this country from the time of the battle of Lexington to the present day has demonstrated that when the farmer has been aroused to his country's needs, there is no limit to which he is not willing to go and there is no sacrifice that he will not make.

It also has been the habit of thoughtless persons to feel that because the farmer works from sun to sun he has no time to think.

That again is a fallacy. The farmer has probably more time to think over his country's problems than any other class of people. As he plows his unending furrows, or drives his reaper, he turns over in his mind the various problems which confront him. The only difficulty is that he is more isolated than any other worker.

Farming Is Not All Profit

The farmer does not hear the beat of the drums, or see the soldiers marching through the city streets; he does not have the opportunity to hear many public speakers. He, therefore, is not necessarily the last man to be aroused to action in any great public movement. Nevertheless, a larger percentage of boys have gone from the farms to the war than from any other occupation.

And the farmer is just as good an American as anyone. He is now engaged in producing not only the foodstuff necessary for this country, but for our allies as well, and in doing this he is doing just as patriotic a work as if he were making guns or shells. And it isn't all profit, either.

With the increased expense and with the food prices fixed by the Government, it is doubtful whether his profits will greatly exceed those of the average year. He, therefore, feels that the financial burdens of the war should be borne by other shoulders than his. That would be all very well if it were possible, but these burdens are so great, the amount of money to be raised is so enormous that no man nor no class of men can be exempted.

He Must Lend to the Nation

The farmer must do his share. He must dedicate to his country not only the sweat of his brow, the long hours of labor, but also a large proportion of the profit of that labor.

But he must realize that in this he is not making a financial sacrifice. He must realize that in this he is merely saving himself. He must realize that every dollar that he can wring out of a stubborn soil and invest in Liberty Bonds he is building up for himself a financial bulwark for the future. If he is blessed this year by good crops and high prices, in buying Liberty Bonds he converts this excess into something that he can use to carry him through a possible lean year.

The fortunes of America are absolutely bound up in the success of our arms. The price of every bushel of wheat, the value of every day's labor are mortgaged upon the United States during this war. If England and France are defeated, we will be defeated. If we are defeated, the indemnity we will have to pay to the conquering German army will be staggering, and German armies will occupy our seaports until this indemnity is paid.

What Defeat Would Mean

Every acre of land, every bushel of wheat, every head of cattle will be taxed to the utmost. And these taxes will continue long after the present generation has disappeared from the earth.

THE REASON WE ARE IN THIS WAR IS THAT GERMANY TOLD THE AMERICAN GOVERNMENT TO KEEP HER WHEAT, HER CATTLE, HER FRUIT, HER COTTON, HER MANUFACTURES AT HOME.

Stop and think, farmers of the West, what that means.

It means, in the first place, that the swollen, bumptious, gold-laced military autocrats of Germany insulted the United States of America. It means that those military autocrats, who call their own farmers pigs, tried to tell us, the people of the United States, where to get off, if you please.

With our characteristic sense of humor, we might have laughed at that cheeky insult But it was a costly joke. This is what the joke meant in dollars and cents:

Millions of bushels of rotting grain.
Thousands of acres of rotting fruit.
Ruin for the stock raiser.
Ruin for the cotton grower.

Do you doubt it? Look at Australia. In 1916 millions of bushels of grain were produced. There were no

(Continued on Page 34)

D. O. Lively, the Well-Known Livestock Man of California, Contributor to Orchard and Farm.

Seed Prices Are Soaring

A Sad Shortage Reported by Growers

JUST when they were most needed in the war emergency, field and garden seeds have been very scarce and high of late and the shortage at the present is, in some cases, quite alarming.

On this coast there have been and still are plenty of seed potatoes, beans and beets for the present season's planting, though in some localities beet seed has been rather hard to procure.

Corn is exceedingly scarce. This shortage affects both sweet and field varieties, and there will not be as much corn planted in California as usual on this account. No seed corn has been coming from the East for two months and none will be coming until next year.

The Germain Seed and Plant Company, while admitting a considerable shortage in certain seeds, particularly cabbage and onion, is not alarmed over the situation. It reports that cabbage seed which formerly sold for $1.25 a pound has advanced to $4. Beet seed, too, has risen in price, but the Germain people say there is enough for the present season's planting. Of course in California most of the planting has been done already, and late planters are going to suffer a little because of their tardiness in getting the seed into the ground, but in many parts of the Pacific Coast country late planting is necessary on account of climatic conditions, so that a great deal of seeding is done in May and even in June.

What the Shortage Means

Cabbage, according to a statement made by Aggeler & Musser to Orchard and Farm, is very scarce and high-priced. Mr. Musser says that the shortage may easily be estimated at between 50 and 75 per cent.

"Home gardeners," said Mr. Musser, "are going to find that they cannot get many kinds of seeds they are ordering at present. Kentucky Wonder is not available, and the general run of garden seeds is rather short.

Thomas W. Chisholm, the well-known seed grower of San Jose, Cal., makes the following report to Or-

(Continued on Page 31)

PROFITEERING IN SEEDS

HAVE you or any of your neighbors been paying abnormally high prices for seeds of any kind?

If so, kindly send a specific statement to that effect to Orchard and Farm, telling who you bought the seeds from, the address of the individual or firm, the kind and quantity purchased, and what you paid.

So far as lies in its power, Orchard and Farm is going to stand between the farmer and the seed profiteer.

If the profiteer charges extortionate prices for seeds, we are going to see that he is put out of business.

Of course, prices are ranging higher on account of the shortage and heavy demand, but whoever charges extortionate prices is going to lose his license or have other drastic action taken against him.

So send in your complaints and we will consider them, and if they are reasonable we will see that they are handed over to the proper authorities.

Address Orchard and Farm, Examiner Building, Los Angeles.

Planting Corn Seed

Here's How to Test It

NOTHING that Orchard and Farm has ever printed on the subject of an individual crop has attracted more attention than the recent articles in this paper on the growing of corn in California.

You will find plenty of people—good farmers, too—who shake their heads when you talk about corn-growing in the Golden State, and yet the fact remains that better and larger corn is raised here than in any other part of the country.

Since the O. E. Bremner article on the Frazee corn of Sonoma County was published in the March issue of this journal, hundreds of letters have been received by the editor from ranchers wanting to know more about the wonderful corn produced by Mr. Frazee and where seed from it might be secured. Mr. Frazee, himself, received so many communications on the subject that he found it impossible to reply to them all—at least, some of his correspondents, in writing to Orchard and Farm, complained that he did not do so.

As Professor Wickson, the well-known vegetable and cereal authority, says, "California cannot claim to be a large producer of corn, though it does grow large corn and has a long green corn season. Corn is not planted by California farmers for the reason that they cannot safely begin to seed it in winter time, while other grains can be so planted. Dry heat puts it in distress, which irrigation does not wholly relieve."

Large Area Available

But while this is true of some of the dry interior valleys, there still remains an immense area in which corn of all kinds can be and should be grown. This area lies in the moist lowlands extending along the coast from Mendocino County to San Diego. Those farmers in this territory who have not seeded their land to potatoes or grain would do well to plant corn this season.

Is it too late for corn planting? No, indeed. You may plant corn, either for feed or the green grocers' market, at any time from March to July and get a good crop, though, of course, April and early May are probably the best times in which to get your seed into the ground.

The corn ear worm is often escaped by late planting. This pest is so common in California that some people say they never have seen an ear of corn grown here that does not have a worm in it. However, the worm rarely ruins the corn, and it may be avoided.

C. E. Trapp of Los Angeles irrigates his corn thoroughly when it begins to silk and he keeps the ground moist until the corn is picked. This rushes the corn so fast that the worm has not time to destroy the car or even to work its way far down into it.

Look Out for Your Seed

As a rule, seed corn has not been very good this year, so that if you contemplate planting you had better look well to what you plant.

Upon close examination you will probably find that many of the ears are in much better shape than the others. It is absolutely essential in most cases to make a selection of seed ears this year in order to insure a stand, as a large amount of the corn did not mature last fall.

An individual ear germination test is the best and only way to determine which ears have the good live kernels.

When the corn is very poor, as it is this year, a large number of the unquestionably immature ears can be detected and thrown out.

How to Tell Poor Seed

One or more of the following points may indicate lack of maturity, and consequently poor germination or lack of vitality of the kernels:

1. The kernels may be loose on the cob.
2. The kernels or the cob may be dull in color.
3. The hull may be blistered.
4. The germ may be discolored or shrunken.

The ears selected from the crib must be tested for germination before planting, as many of those apparently good will contain a large number of poor kernels.

Peach trees tend to become too tall and straggling. They do much better if a low, broad spreading head is maintained. Whenever the fruit buds are killed the opportunity should be taken to cut them back and renew the head lower down.

Ship Eggs by Parcel Post

How to Weigh, Pack and Mail Them.

One of the most profitable branches of egg marketing is that in which the parcel post is utilized. There are more eggs being shipped through the mails than any other food commodity, which is a sign of the success of this mode of shipment. All eggs sent in this way should be candled.

Average hens' eggs will weigh about 1½ pounds to the dozen, or 2 ounces apiece. The weight of a single dozen of eggs in a carton properly packed and wrapped for mailing will run from 2 to 3 pounds, depending on the nature of the particular container, the size of the eggs, and the packing and wrapping used.

If the container be a very light one and the eggs small, the parcel may fall within the 2-pound limit, and the postage, therefore, within the first and second zones, or 150-mile limit, would be 6 cents. Most parcels containing a dozen eggs will exceed 2 pounds but will not reach 3; therefore the postage on them will be 7 cents within the first and second zones. A parcel containing 2 dozen eggs will add perhaps 2 cents to the postage, though sometimes only one cent, depending on the nature of the container and the packing and wrapping.

The System Is Cheap

It should be observed that the larger the parcel, within the size and weight limits, the cheaper is the postage, as the first pound of every package costs 5 cents within the first and second zones, while each additional pound, up to 50, costs but one cent; so that while a one-pound parcel would cost 5 cents postage, a 2-pound parcel would cost only 6 cents, or 3 cents a pound. A 20-pound parcel would cost 24 cents, or one and one-fifth cents per pound, and a 50-pound parcel would cost 54 cents, or but one and two-twenty-fifths cents per pound.

Shipping eggs intended for hatching purposes in the style of containers shown in government bulletins has been found satisfactory to a great many poultry breeders. Those who do not favor this way of packing can use the method ordinarily employed when eggs are to be shipped by express, which is covered by the following postal regulation:

How to Pack

Eggs for hatching shall be accepted for mailing, regardless of distance, when each egg is wrapped separately and surrounded with excelsior, wood-wool, or other suitable material and packed in a basket, preferably with a handle, or other suitable container, lined with paper, fiber-board or corrugated pasteboard, in such a way that nothing can escape from the package. Such parcels shall be labeled "Eggs for hatching," "Keep from heat and cold," "Please handle with care," or other suitable words, and shall be handled outside of mail sacks.

The person receiving eggs for hatching should place them on the small end in bran or similar substance for 4 hours, in order that the germs may settle thoroughly before incubation is started.

Supplies for Shippers

As the postal regulations require that every parcel must have on it the name and address of the sender, preceded by the word "From," each person shipping eggs by parcel post will find it convenient to have a rubber stamp similar to the following:

From
William Smith,
Rural Corners, Ore.

The stamp and an inking pad will cost about 50 cents.

The postal regulations also require that parcels containing eggs are to be marked "Eggs." For this purpose a rubber stamp having letters one-half inch high and reading "Eggs" should be used to stamp this word on each side of the parcel. Thus the nature of the contents will be apparent no matter which side is in view.

The sender will soon learn how much postage each size of parcel requires. Parcel post scales can be secured at reasonable prices. Scales are needed in the farm home on many occasions, and the parcel post type will serve these other purposes also.

How to Candle Parcel Post Eggs

A SIMPLE candling outfit may be made of an ordinary pasteboard box sufficiently large to be placed over a small hand lamp after the ends have been removed.

The box should have a hole cut in it a little smaller than an egg, on a level with the flame of the lamp. Several notches should be cut in the edges on which the box rests, to supply air to the lamp.

The box should be sufficiently large to prevent danger from catching fire.

Candling is done in the dark, or at least away from strong light, and each egg is held against the hole in the side of the box, when its condition may be seen.

An egg that shows any defect should not be marketed.

New Corn Varieties

By Luther Burbank.

OUR common corn, zea mays, has shown a wonderful adaptability to various soils and climates and also to the various uses for which it is grown, much more so than any other grass or grain.

Next to it in variability are the sorghums, which include the various Kaffir corns, broom corns, and also sugar canes. These are two very distinct species, one of which is a native of Africa, the other of America, and there is no record of any new variety having been produced by crossing.

Five years ago, after numerous trials, a few kernels were produced on an ear of Burpee's improved Stowell's evergreen sweet corn, from pollen of the white "goose neck" Kaffir corn.

These precious kernels were carefully planted, one by one, the same season and all but two were Stowell's evergreen to all intents and purposes but two ripened weeks earlier and were almost true Kaffir corns with compact, crooked, drooping "heads" containing many scattering hard round kernels, also bearing "goose neck" drooping ears, somewhat resembling popcorn.

Kernels Inside the Ears

The next season all were planted and a new corn, in many respects resembling white rice popcorn, but with more nearly globular kernels was produced, but the ears were branched or many fingered and bore kernels not only on the outside, but on the inside of the ears, producing an enormous number of kernels to the cluster.

As the cobs had to be crushed to obtain the corn, selections were made of short, stubby ears which bore kernels only on the outside.

This new corn I call sorghum pop. It is quite uniform, a superior yielder and one of the best popping corns known. It pops out pure white, sweet and with a whirlwind vehemence.

This amazing production is of great interest not only to growers, but also to botanists.

The New Bantam Corn

The early Bantam sweet corn, introduced by W. Atlee Burpee & Company several years ago, is quite universally known as the best of all early sweet corns. The ears are short and only eight rows to the ear.

By most rigid selection for eight years I have produced an early bantam more uniform in all respects, more productive, and with ten and twelve rows of corn to each ear.

Rainbow Corn—The leaves of this beautiful corn are variegated with bright crimson, yellow, white, green, rose, and bronze stripes. A really wonderful decorative plant, as easily grown as any common corn and fully equal in beauty to the most expensive greenhouse dracaenas.

Popcorn—Pure Gold—Unusually productive. Beautiful long slender ears, three and four to each stalk. The kernels pop white and larger than other kinds.

New California Field Corn—A very early short stalked, extremely productive hard yellow field corn which has been under selection for earliness and productiveness for many years.

Thus far this season our Pacific Coast corn planters have had to rely upon home-grown seed, as little or none has been shipped from the East. For this reason all the more care must be taken to test seed, for it is sometimes found that local seed does not come up to the standard in certain districts. In other words there is not so good an opportunity for the corn grower to select seed as formerly.

The best California seed is as good, if not better, than any other, but poor seed is as bad as any sent from the East or elsewhere.

Potato Problem Is Solved

New Gore Drying Process Described.

WHAT shall we do with our potatoes?

Enormous crops are going to be produced on this coast during the coming season. Where are they going to find a market?

The government practically has declared that each territory must either consume its own products or handle them as best it can without the aid of the railroads, for there will be comparatively few cars available except for the shipment of supplies to the army and our allies.

Last year California raised nearly a million pounds of potatoes. They are not all disposed of yet. Large quantities were shipped East, but the Eastern country could take only a limited amount, as Michigan and other States overproduced in an astonishing way and our growers had to meet heavy competition, their only advantage being in the fact that they were able to supply many carloads earlier than the East could produce and market them.

This year it is different.

We are up against traffic conditions that are likely to give local potato growers a body blow.

A way out is anxiously sought.

How the Gore System Works

Here is the solution of the problem. It lies in the speedy adaptation of the new Gore process of drying potatoes for cattle feed and for starch.

The United States Department of Agriculture spent thousands of dollars developing the Gore process and plants will be operated at Rhinelander, Wis., and in other places this year. The process is simple, the machinery and apparatus the simplest kind, the cost of operation not excessive.

Orchard and Farm is fortunate in having secured a complete description of the new process which is here presented for the first time on this coast:

The washing of the potatoes is done in a continuous paddle machine of the type used in washing potatoes for starch making. From the washer the potatoes are elevated and delivered to a mill which grinds them to any desired degree of fineness. The ground potato is liquid and flows to a stock tank provided with a gate-valve, from which the material is delivered to the press as needed.

The ground potatoes are pressed in a hydraulic press, using racks and cloths just as in cider making. The racks or cheeses of ground potato are built up 3 inches thick. Ten to twelve cheeses are laid upon the press truck. This is then pushed into the press, and the pressing started. About one ton of ground potato is pressed at a time. From 15 to 20 minutes is required for pressing, and meantime another set of racks and cloths is made ready for pressing, so that the operation is nearly continuous.

It Is a Labor Saver

As soon as the pressing is completed the press-cakes are shaken from the cloths into the feed hopper of the drier. The juice which flows away is practically free of starch, as the grinder pulverizes the potatoes so finely that nearly all of the starch liberated from the broken potato cells is held in the press-cake.

The situation is different if an apple grinder which does not grind the potatoes finely as the special grinder, is used. In this case the juice must go to a settling tank where the starch separates, can be collected daily and dried with the rest of the material.

The drier used is a standard textile drier of the apron type. The advantages of the continuous apron drier are its simplicity in labor, good heat economy, uniformity of product, slow speed and wear of machine. It is fireproof and adaptable to this the factory building so that its waste heat can be used for heating.

Dries at High Temperature

The drier-feed-hopper consists of a trough six feet wide at the bottom of which a toothed roll feeds the material slowly through a slotted opening. The material is lifted as fed by a short flight elevator and dumped on the drier apron. The drier itself is a chamber made of structural iron and panels of double sheet iron with insulation between. It is 45 feet long, 15 feet wide and 6 feet high. It is provided with steam coils, fans and apron of one-eighth inch wire cloth, exhaust fan and pipe, together with adequate shafting, pulleys and gearing for operating the fans and apron. The apron speed is so adjusted that 15 minutes are required for the ground pressed potato to pass through. As it is carried through, eight sets of light spring harrow teeth, distributed through the drier, open out the material, and so permit the air to pass through it. Using 50 pounds steam pressure in the coils the drier temperatures are about 220 degrees Fahrenheit, and at least 600 pounds of finished dried pressed potato can be prepared per hour, corresponding to 3000 pounds of fresh potatoes.

The power required in producing

(Continued on Page 23)

SOLDIERS OF THE SOIL—SOLDIERS OF THE FLAG

Comrades in the Field of Peace, Loyally Working to Feed the Comrades Over There

Pinto Bean Is a Winner

Tremendous Interest in Its Culture

FROM all over the Coast letters have been pouring into the office of Orchard and Farm inquiring about the cultural methods and possible prices of pinto beans. This flood of inquiry was the result of an article in this paper last month calling attention to the wonderful success which the New Mexican bean planters had had with the pinto, the production of which on a large scale had added millions of dollars of wealth to that State.

As stated in the Orchard and Farm article, the pinto bean does not require a very good soil and is essentially a dry-farming product. It does well at an altitude of over 1500 feet, which probably accounts for its successful growing on the high mesas of New Mexico.

Since the article was published there have been various comments upon it. One writer said that he did not believe the Coast farmers could get more than seven cents a pound for pinto beans, and that better results would follow their production of other varieties, particularly navies and limas.

Even if this be true, most of the white bean land will be put under cultivation this season, and if a rancher has some outside land of a suitable altitude, why not try out the pinto?

It is not quite clear what objection can be raised against the production of the pinto bean when the Federal Government is encouraging its growth in every district where it can be raised. To be sure, eastern buyers are likely to shy at it, for the average Easterner has a prejudice against any variety that is not pure white. This, of course, is silly, but the objection is rather hard to overcome. However, before the war is over, these fastidious bean-eaters may change their minds, for the Government is going to buy up so many beans of all kinds that they may be glad to get pintos or any other colored bean in the market.

During the past two months the Government has bought over 1000 carloads of beans of all kinds. It favors the pinto because it is a very nutritious article of diet and has an excellent flavor. The soldier boys eat it with avidity.

Prices Will Be Good

The correspondent who is afraid that the pinto bean-grower is not going to get more than seven cents a pound for his product need not worry. Orchard and Farm has received word from Washington that the United States Food Administration will undertake to handle the 1918 pinto bean crop, paying growers eight cents a pound for their product, under grades and rules adapted by the Rocky Mountain Bean Jobbers' Association. It will pay shippers eight-tenths of a cent per pound for recleaning, sacking and loading f. o. b. cars for shipment. It will develop a market and so supervise selling that consumers will pay only reasonable prices, if possible, not to exceed twelve and a half cents per pound.

The pinto bean is grown extensively in New Mexico, Colorado and Kansas, but until recently the market has been local. The 1917 crop of white and lima beans being below normal, and the bean demand greatly increased on account of the war, the pinto promptly sprang into national prominence. It is a good bean, rich in protein and an excellent substitute for wheat.

A Dry Land Bean

The pinto is a dry land bean. There being large areas of dry land in the Southwest, the probability is that the 1918 acreage of pintos will greatly exceed that of 1917, especially in view of the fact that the United States Food Administration will establish a national market for them. Beans for seed are sold to growers at cost, where needed.

The bean shortage last year mainly was in the East. California, great in production of many kinds of food, produced better than a normal crop. The State's yield was over 400,000,000 pounds. There were 558,000 acres, with an average yield of 870 pounds per acre. California produced a dozen or more varieties of beans in 1917, whites leading with 141,000,000 pounds; limas second, 124,400,000 pounds; pinks third, 120,000,000 pounds.

As to inquiries about cultural practices in the case of pinto beans, the reply may be made that they are not different from those employed in growing other beans, except that the pinto can get along with far less moisture, being, as stated before, a dry-farming product.

Squirrel Week in California

EVERY farmer who has a squirrel on his farm should remember that April 29 to May 4 is squirrel week for the entire State. Also that if he does not destroy all of the squirrels in that one week that the open period for squirrels will be extended. The important thing is to declare unconditional war on these rodents and "fight it out on that line if it takes all summer."

Profit in Rabbits

How the Shermans Do It

WHEN an Orchard and Farm representative paid a visit to the Sherman rabbitry, at 2669 North Griffin Way, Los Angeles, he found both Mr. and Mrs. J. M. Sherman busy with their bunnies.

Mrs. Sherman, who started the Southern Coney Fur Club some time ago, reported such an increased interest in the business of rabbit fur making that it looked as though the whole of Southern California had suddenly discovered what a good thing the fur-bearing rabbit was and that everybody had gotten the craze. Many Los Angeles women who had no idea of what there was in the fur rabbit industry a few months ago are now deep into it, and some of them are quite excited over it.

Mrs. Sherman is the president of the club and she takes great interest in showing novices how to raise, to kill and skin fur rabbits. There seems to be easy pin money in it for those who go into it in a small way, while for those who are willing to devote their attention to a good-sized fur rabbit farm there is a good living and something more.

The Shermans Are Thriving

Beginning in a very small way a few years ago, the Shermans now have over 400 rabbits of various breeds. They hold prizes for checkered giants, flemish giants and other breeds.

"Los Angeles," said Mr. Sherman, "is now the rabbit center of the whole country. We are shipping fur and other rabbits to Michigan, New York, Alabama and other Eastern and Southern States and have had inquiries from Cuba and other remote places.

"One might think that because of the warm climate, fur bearing rabbits would not thrive here so well as in other places, but that is a great mistake. They do even better here than elsewhere, for you can raise a litter at any time of the year and green feed is more easily obtainable. Some of the Rufus Red Belgians which we sent to Syracuse, New York, have won first prizes at the State Fair there. We have sent rabbits to Vancouver and other places in the British possessions.

"The reason why the Coney Fur Club has been so successful is that any woman handy with a needle can make up the furs into most desirable patterns. The sole object of the club is instruction in the fur rabbit industry. We now have about forty members and the club is still growing.

Rabbit Skins for Aviators

"A new use has been found for rabbit pelts. They are made into waistcoats and helmets for aviators. With the expansion of the government's aviation service there will be a big demand for rabbit skins in the near future.

"We are encouraging everybody to go into the rabbit fur business everywhere on the coast. We are not afraid of competition. What we want is to put the rabbit business on the map. This will surely be done, for the government is encouraging it in every way possible. People are being told by the Food Administration what a cheap and delicious meat rabbit flesh is, and everybody will know about it and eat it before long."

As showing the keen interest in fur rabbits—and, by the way, illustrating the wide circulation of Orchard and Farm—Mr. Sherman said that after the recent publication in this paper of an article on the subject, in which his name and address were given, he received, in one day, 53 letters from persons he never had heard of before, asking for particulars as to rabbit growing, cost of keeping and other kindred matters.

How Orchard Intercrops Pay

Good Examples in Southern California

A CERTAIN farmer in the Yucaipa Valley, who was an experienced potato grower, intercropped a considerable acreage of young apple orchards with potatoes last year. He had one-half to three-eighths of the land in potatoes, thus leaving a considerable strip along the tree rows as a protection against injury to the trees. He harvested an average of 110 sacks per orchard acre, which he sold at $3.00 a sack. His extra water cost was $1.00 per acre. His only other extra costs were seeding, cultivation of the potatoes and the harvesting, which were, of course, not higher than similar costs would be on open ground.

A certain farmer in the cabbage section of Orange County grew last winter five tons of winter cabbage to the orchard acre. Following the harvesting of the cabbage, he planted black-eye beans in late June and harvested twelve sacks per orchard acre. His gross returns were approximately $150 per acre.

The owner of a young walnut orchard in Ventura County has for the past two years raised 3000 pounds of Henderson bush limas per orchard acre. This year he sold his beans for 12 cents a pound, or a gross return of $360 per orchard acre.

El Monte and Santa Ana Crops

A walnut grower in El Monte turned under a green manure crop in February, 1917. In June he harvested seventy-five sacks of potatoes and in October he threshed twelve sacks of black-eye beans to the orchard acre. Total gross returns about $260 per acre.

In a two-year-old citrus orchard near Santa Ana, the owner raised sweet potatoes, which he sold for $400 per orchard acre yield. These followed a winter green manure crop, but they were matured early so as to take advantage of high prices.

These are, of course, the results obtained by particularly good farmers working under favorable conditions.

A summary of the records of yields of intercropped citrus land, covering several hundred individual instances, shows that one should expect from an orchard acre of three-year-old trees or younger 60 per cent of the yield which he would get from an open field acre under like soil and climatic conditions, and 50 per cent of a normal open field yield in orchards from four to six years of age, inclusive.

Walnut groves will do better than this because of the great distance between the slow growing trees. A 50 per cent yield may often be obtained in a ten-year-old orchard where the trees are sixty feet apart. Plantings in apricot orchards, on the other hand, will not do so well as those in citrus. In fact, intercropping probably will not be profitable after the apricot trees are four years old.

Results at Experiment Farm

The following statement of the results with intercropping sixty acres of the Citrus Experiment Station property at Riverside with black-eye beans may be taken as typical of what may be accomplished even when conditions are below normal to begin with:

The land in question has been cropped to grain hay for many years. So far as known, it had never been planted to any other crop prior to this year, nor had it ever been irrigated. In 1915 one ton of oats per acre was harvested from a part of the tract, the remainder being untilled that season. Following this crop, all the land was deeply plowed and nothing was planted during 1916.

The property was planted to citrus trees during the months of May and June, 1917, with the trees placed 20 by 24 feet apart. A narrow strip of land in the tree row was plowed at the time of planting. The rest of the ground was unworked until preparation for bean planting was commenced.

For bean growing, the land was double-disced with tractor and 12-inch disc two ways and harrowed; four and one-half acre inches of water was applied in furrows fourteen inches apart, the land was double-disced again and seed planted. The seed was planted with bean planter, rows being thirty-six inches apart, with six rows between the trees, occupying three-fourths of the ground. The dates of planting were from June 7 to 26.

Two irrigations were necessary after planting, one July 23 and one August 15. Cultivation was done with a small cultivator, having two sweeps to the row and cultivating two rows at a time.

In addition to the beans, a single row of dwarf milo was grown in the tree rows. The heads were harvested and the stalks used to tie up the trees as a prevention of frost injury during the winter. The grain produced easily paid for the cost of growing the sorghum and tieing the trees.

Labor Requirements

Choice of intercrops should be made with due consideration to the labor requirements of both the orchard and the intercrop. For instance, the planting of the intercrop should be so planned that the supply of man and horse power at hand may be turned directly from the rush of spring orchard work to the preparation of land and planting. Similarly, the time for harvesting the intercrop should be planned to avoid the stress of fruit harvest so far as possible.

Much of the work connected with the intercrop may be handled by the regular labor supply in time which might not otherwise be gainfully employed, unless such co-ordination is worked out. Black-eye beans may be planted, in the interior localities at least, any time from the middle of May to the first of July, with every reason to expect a satisfactory harvest. The time of maturing in the interior is about ninety days on the average.

Principal Intercrops

Beans, grain, sorghum and potatoes were the principal intercrops used during the past season, with beans easily the favorite. Some of the advantages and requirements of these crops have been mentioned in illustration of various points relative to intercropping. The reason for the predominance of beans may be summed up briefly as follows: They are not hard on the soil and may even be a benefit to the orchard; the water requirements are easily met without interference with orchard irrigation; the product is not perishable, of high food value, and may be shipped anywhere; varieties may be found adapted to almost every condition and the cultural requirements are, in general, well understood.

Spring potatoes follow a winter cover crop admirably, providing the labor requirements can be adjusted.

Usually no extra water is required for this crop, beyond what would normally be used for the orchard.

As an illustration, American wonder potatoes were planted on the Citrus Experiment Station farm at Riverside in late February, following the plowing down of a melilotus crop. They were irrigated twice and harvested in June, yielding 125 sacks per acre. A crop of early amber sorghum followed the potatoes and was harvested for hay to make way for another winter crop of melilotus.

Fall potatoes, on the other hand, require irrigation at least once every two weeks for the first six weeks after planting.—R. S. Vaile

Plant a War Crop

Between the Trees

Enlist as a Farm Soldier!

Send Your Name and Address to This Office.

SEVEN hundred and fifty thousand new farm workers are needed in this country to increase the war emergency food supply.

Do you need work? Will you be willing to help in this grand movement by which our war crops will be cultivated and harvested?

What are you doing now?

Are you one of that class that is loafing about the poolrooms holding up the store fronts and patronizing the free lunch counters?

Let us hope that you are not. But if you are here is a way to redeem yourself and show that you are a man:

Enroll on the Orchard and Farm list of men who are willing to devote themselves to public service by work upon the farms.

Or it may be that you are of that ever-industrious class who want to help win the war and don't exactly know how to do it. Orchard and Farm presents a way: Enroll as a farm worker.

Perhaps you wanted to enlist in the army or navy and were not accepted, but are able to do your day's work in orchard or field. Enroll!

Or it may be that you were formerly engaged in agriculture and are now willing to do something to help out crop production temporarily. Enroll!

Sign the following and send it to Orchard and Farm, Examiner Building, Los Angeles, immediately:

I wish to enlist in the army of farm laborers for the present war emergency. I shall expect wages at the rate of $.....a day during the period of my employment which will be ..... months.

Name .....

Address .....

System on Your Ranch

Here Are Some Very Helpful Ideas

NOWADAYS the farmer pays more attention to overhead expense than was the case a few ... ago. In some neighborhoods ... armers have a way of trading ... it hauls. For instance if Jones ...ng to town with a load of hogs ... expects to come home with an ... wagon, he telephones to John... ...king if there is anything he ... ike to have brought out from ...

...be it's a spool of wire, a can of ...ting oil, a dozen strips of sid... a hundred feet of derrick rope, ...mething else of use on the farm. ... e can bring something out for ...son he relieves Johnson of a spe... trip to town, and obligates John... to do him a favor at some future ... This system generally works ... the mutual advantage of all the ...mers in the neighborhood.

One farmer of my acquaintance is ...n enthusiast regarding fertilization, ...d is constantly spreading barnyard ...tilizer on his land. The quantity ...duces at his stables is not sufficient ... his needs. So when he takes a ...ad of potatoes or hogs to town and ...ds himself with an empty wagon to ...aul over the long miles home, he ...ves down the town alleys until he ...mes to a stable where there is a ...e of manure. Then he tosses on a ...d of it and goes home with some...g of value instead of emptiness.

In many instances the town people ...re glad to have someone haul away ...ure which has been accumulating ...d drawing flies. Some folks want ...y cents or a dollar for a load of ...nure, but it is a good buy at that, ...d every time this farmer goes home ...th a heaping load of fresh manure ... is making his farm land more valu...

There are many ways of turning ... profit time and energy which ...ht otherwise be wasted. Use your ...d all the time. You might as well ... home with an empty wagon as an ...pty head, and you will unless you ... your head. Empty heads and ...pty wagons go together, usually.—... B. Emerson.

Secret of Keeping Help

HOW to keep help on the farm is a problem which Fred T. MacFeeley says he has solved, and ... tells about it in the Farm Journal. ...e says that he pays according to a ...ding scale, that is $50 a month dur... the busy seaon, $40 when work is ...t so rushing and $30 during low ...e.

"In the rush season," says Mac...eley, "we pay our temporary help ...nty-five cents an hour for a ten...ur day, with time and one-half for ...time. As an inducement for them ... stay the time out, at the end of ... rush season we give a bonus of ... to each man who stays that long. ...ourse, this does not include their ...rd. We board and room all of our ... and feed them well, as we find it ... to do so.

...very morning at seven o'clock, ...t Sunday, the bell rings to begin ... and every evening at six it rings ...t, with an hour for dinner at ... Any time we work over this ...y time and one-half, except to ...r-round men. The extra money ... them during the rush season ... for their extra work. ... the temporary help does any ... work as our regular hands ... little that is required They ... this, and in that way ... every other Sunday off. ... entertainment and recreation, ... that we have provided well ... my son's house and ... with all modern ... make it pleasant ... as for ourselves. ... all of the latest ... the work easier.

We provide proper machines to do everything that can be done by machinery. We have installed player pianos and phonographs in our houses, and our help have the use of them. In fact, our men are a part of our families. Both my son and myself have seven-passenger touring cars, and every Saturday night we load them up and drive to town and attend the picture shows. Once a month we have a big party and invite the whole neighborhood. Occasionally, when work is not too heavy, we take a holiday.

"All these things may seem foolish to some people, but they have paid us big dividends."

Successful Rancher's Secret

IN THESE days when Pacific Coast farmers are rushing into this crop and then into that, staking all on one product and often losing, it is refreshing to note the methods of a man who lives near me, and who is applying an eight-cylinder system to two-cylinder ranch.

This man's ranch consists of only twenty acres, and he alternates his crops, but always has two or more going nearly all the time. He has two five-acre fields, and on each alternates cabbages and potatoes. Thus each year he has five acres of potatoes and five acres of cabbages.

The element of speculation is in this manner entirely removed, and over a period of years he has made excellent profits, not merely because his system insures that in the years of high prices he always has a crop to sell, but because he has worked so long with these vegetables on the same soil and with the same climate that he knows their culture from A to Z.

These are the two specialities he raises for market, but they are not the farm's only products. There is a family cow, a pig, a home flock of hens, and a small garden tract. No matter what market conditions may be, these side interests effect a great economy.

Considering how successful this man has been, and how well other farmers are acquainted with his story, it is strange that he has no imitators. The average farmer would rather gamble, but it is better judgment to be conservative.—J. B. T., Lodi, Cal.

How I Save in Building

I HAVE learned by long experience that to buy building materials at first hand every time I want to put up a shed or a hen house costs a whole lot more than to buy second-hand stuff.

The same practice is applicable to the purchase of material for home building. Many people contemplating building homes do not appreciate the opportunities to economize offered by firms established for the buying and selling of second-hand building materials. These companies have every-

(Continued on Page 43)

A Water-Weighted Tractor

Adaptable to Firm or Mushy Soils

HERE you are the water-ballasted tractor!

Everybody who has ever handled a tractor in the field knows that at times the operator has need of running light, while at other times he wants his machine pressed down hard and solidly to the earth.

Well, there was hardly any use of trying to meet these requirements in one tractor while an evenly weighted machine was employed.

About all one could do to meet the varying demands for heavy and light traction was to use a heavy tractor where such a machine was needed and a light one where only a light one would fill the bill.

But the water-ballasted tractor—an entirely new machine invented by a Los Angeles man and first demonstrated in Southern California, under varying field conditions, obviates the necessity of using light tractors for light work and heavy ones for heavy work.

All you have to do is to fill your drum with water if you want to get heavy traction, and if you want to skim over the ground lightly just let the water run out.

How the Idea Came to the Inventor

Looking at a big, hard-working tractor, sinking deeply into moist soil, the inventor whose name is Allen and whose home is in the Southland where tractors are being bought by the dozen every month, watched the giant machine wallowing through the mud until at last it became firmly stuck and could not pull itself out, no matter how hard the chug-chug of the engine and no matter how much fuel was burned.

"Wouldn't it be fine," said the perspiring operator, "if this darned old contraption could be lightened up, even for a minute or two—just enough to let me get out of the mire."

"It certainly would," said Allen, "and I think I see a way to fix things so that a machine could be built to be both heavy and light at a moment's notice."

"How's that?" asked the operator. "That's the kind of a rig I want."

"Well," said Allen, "you just wait. I'm going to get to work and fix one up. It won't take long."

Water on the Brain

Allen could hardly sleep that night. He had water on the brain for several days. Then he set to work and he got that water into a tractor wheel, and now the water-ballasted tractor is a matter of fact and not of fancy.

Is it practicable?

Well, just read this report made to Orchard and Farm by W. H. Harris, formerly of the Agricultural Department of the Great Northern Railroad and now doing his bit in Southern California to speed up food production and conservation. Mr. Harris is the man who made the report n the dehydration of foods published in the April number of Orchard and Farm—an article widely read and commented upon.

"Soil tractor essentialism is embodied in three factors," says Mr. Harris, "space flexibility, weight adaptability and sub-soiling capacity. Space flexibility we must have. The big tractor is great when let loose on a section, where the return per acre is small, where the skilled engineer is available, where there is plenty of capital provided; but now when war emergencies prevail, when it is imperative that the small tracts must be made intensive and speeded-up, we must have the small tractor, for the little price—the tractor which can be handled by the ordinary engineer, the boys, aye and the girls. It must have a space flexibility that will make a mule tread on his toes to make the same short turn. It must have a weight adaptability that secures acceptable results from many applications, a weight quite sufficient for firm traction, not too much for packing the soil, heavy enough for the sod, light for the harrow, cultivator and seed-drill, again heavy for the load to market and at once light for the run home, and lastly but not least, sub-soiling capacity.

Scientific Requirements

"Plow or cutter sub-soiling is either too little or too much, puncture sub-soiling is just right as it puncture-disturbs the surface of the sub-soil and picks up portions of the surface breakage and distributes the particles of the picking, while the plow or cutter sub-soiling spreads a layer or strata quite uniform in density. The best soil practice is to secure particle distribution of the sub-soil to enable the atmosphere and the top loam to normalize and appropriate the latent fertilization forces of the sub-soil by the process of aeration and oxygenation.

"A tractor possessing the stated essentials will increase crop results 20 per cent in three years without the application of commercial fertilization. The results of the utilization of sub-soil fertilization in connection with lightweight traction, not only increases crops but decreases plant diseases and soil vermin conditions by virtue of the action going on in the process of loam utilization of the stored up salts and minerals of the sub-soil. And this is not all, for the keeping quality of the products in many instances will be greatly enhanced and the food element better balanced.

"Now, by reference to our illustration of the new water ballast tractor, any layman can comprehend that the machine is a final word in tractors. It is so simple, flexible and —— well, what's the use? Just the water in the wheel light or heavy at will, it is like Flanigan of railroad fame, off again on again.

Those who cannot appreciate the concreteness of this tractor without further interpretation should be interned for the period of the war as a slacker to mentalism and for extending comfort to the enemy.

Any Foundryman Can Make One

"The inventor has so designed the machine that the wheels can be produced in little foundries anywhere and everywhere by very ordinary foundrymen. There is conservation in metal and the utilization of the ordinary mechanic in assembling the simple parts.

"Despite the very best efforts of us all there will be a great deal of food go to waste in this year of 1918 for the want of tractors and devices for the production and preservation of it in forms suitable to be sent abroad.

"Just the water in the wheel—is the weight for heavy traction. Just let it run out and at once there is the light traction. If all of us were as flexible, heavy and light as this tractor the war would be won quickly."

New Water-Ballasted Tractor

Trying Out Trucks

PACIFIC Coast farmers are buying trucks at a rate that augurs well for the solving of the transportation problem now squarely before the producers of this country.

Big savings are unquestionably being made by our ranchers by doing their own hauling wherever the tonnage to be hauled is sufficient to justify the first cost of a truck.

Saving $2.63 per hog is the latest truck record to come to the attention of Orchard and Farm. This new record is due to the performance of the sturdy truck.

William Moore of Fallbrook, Cal., is the owner of the record maker. Moore is a lemon grower and hog raiser. He has in the past been hauling his hogs to San Diego or Los Angeles in a made-over truck. The trip from the Fallbrook ranch to the city occupied twelve or more hours.

It was this long, tiresome journey that caused the hogs to lose money. An average shrinkage in weight of 25 pounds was suffered by the hogs. At this rate Moore was losing $3.75 per hog.

A Maxwell truck was purchased and over the good roads it is making about twenty miles an hour. Moore figures that this speed is saving him about 70 per cent of the loss which he had been suffering.

A Texas Test

Triumphing over obstacles the equal of which have never before been seen, a new truck, sent to Texas for a Government test, came through without a single adjustment or broken part. The test course was 2000 miles.

The Government was frank. In the letter of instructions covering tests it was stated that Marfa, Texas, and the surrounding territory had been chosen as a test ground because the road conditons there were the most severe that could be found.

The Government was right. Sand, inches deep, through which it was possible to make progress only on the lower speeds; mountain trails, mere imitations of roads; rocky, military passages, intended, primarily, for pack trains; all these were the rule.

A Difficult Route

Government orders, covering the tests, called for at least 2000 miles for the truck. The new truck exceeded this mileage by several hundred miles.

Some of the grades were particularly difficult and dangerous. One, called by Texans, the Rim Rock was, perhaps, the worst. Starting from the top or Rim itself, the descent was startlingly sudden. In less than six miles there is a descent of 4000 feet, and some of the turns are so short that a mistake of six inches on the part of the driver would mean a fall of 2000 feet or more to the rocks below. The new truck was the second truck to descend this trail and the first to climb it.

Pinto Canyon is another hard one. While not so abrupt as the Rim Rock, there is a steady ascent of twenty miles. This is between Ruidosa and Marfa, the difference in level between the two towns being almost 4000 feet. There are but few stretches on this trail where "high" can be used.

Following the test, the new truck—a Maxwell—was driven overland from Marfa to Dallas, stopping at San Antonio to give the army men there another test of its efficiency.

It is a sign of the progressive spirit of our Pacific Coast farmers that they are buying and using more trucks every day.

Dehydrate Your Food Stuffs!

By W. R. Mitchell

Tremendous interest was taken in the article in the April number of Orchard and Farm, entitled "Few Cars for Fruit Crop—Dehydration Must Be Resorted To." In fact the article has inspired a number of California and Oregon fruit and vegetable packers to organize new dehydration plants, and in our next number we hope to report that these enterprises are well under way.—Editor's Note.

IN THE production of sugar, carbon and water are united by the living green of plants in the presence of light and favorable heat.

After sugar is made in the potato leaf the underground stems or tubers remove some water and starch is formed and stored. Sugar and starch composition is considered to have the water of organization.

To dehydrate potatoes would be to remove the capillary and free water content, for the prevention of decay. Since no bacteria molds or other living forms can thrive without this water it is a very simple process to dry foodstuffs and thus prevent their decay.

Salt, vinegar, and very sweet syrup, extract water from the bacteria and molds and thus prevent their activity and growth, so these and many other substances are good preservatives.

To sterilize many fruits and can them successfully is a common practice but to remove the capillary and free water is a more primitive method of preserving many of our juicy fruits.

In the maturing and ripening stages of many fruits and seeds the parent plant successfully accomplishes the necessary dehydration as in wheat, beans, nuts and many others.

Various Processes

Many volatile oils and numerous flavors are often lost in common drying practice, so many interesting and complex dehydrating plans are being devised

The centrifuge and various low temperature vacuum methods are quite practical in retaining colors and flavors.

Food storage and long distance transportation do not justify a large water content.

Nutrition values of foods are important but water can be added when and where we desire.

Dandelion and milkweed plants do not provide much water for their seeds to successfully "leave home."

We often become interested to know why the watermelon and apple fruits store so much water. Dried meats are well preserved when the fat contents are low.

Many oils are successfully used in preventing bacteria and molds from causing decay and are good preservatives.

Important Just Now

To reduce the water content of many foodstuffs by dehydration is an important matter today.

The composition of the potato is 78.3 water, 18.4 carbohydrates, .1 fats, 2.2 protein, 1. ash so it is possible to clean and grind the potato, then dehydrate, then reduce to flour if desired and all the food value is retained.

No vegetables or fruits ought to be permitted to decay except for soil fertilizer purposes now.

Human and other animal foodstuffs are too valuable to permit waste.

Soil fertility investigations indicate widespread necessity for humus, so it is well to plow under large quantities of plant and animal waste products.

Wet garbage is very valuable fertilizer but to store and remove from the cities it has been successfully dehydrated and as a carrier other essential mineral qualities can be easily added.

It Is a Simple Plan

Dehydration is simple and successful—raisins, prunes, peaches and so many other fruits are well known illustrations.

Storage and long distance shipment of water in foods is not good practice and cans are costly today.

Our barns and extensive warehouses can hold large quantities of dry foods and our hay and grain are easily kept dry for a long time.

More knowledge and practice of such food values is possible in our well arranged cooking classes of our high schools. Food production, preservation and their home preparation for balanced rations for human efficiency are important.

Will Increase Conservation

Dehydrating foods will increase conservation efficiency.

Since "food will win" more attention to such subjects are vital to our increasingly complex civilization. Malnutrition is too commonly noticed among all people and when will we practice what we know or is there a real lack of knowledge, or money with which to buy or is there too little food supply? The time has arrived to educate the people in these things.

Who Is Doing Dehydration?

THE question is constantly being asked of Orchard and Farm "Who is doing anything with dehydration on this coast?"

Here is a partial list of the firms engaged in this highly commendable enterprise. If there are any more in Orchard and Farm's territory we should be glad to hear from them and to put them on our list.

E. Clemens Horst Company, San Francisco.
The A. A. A. Evaporator Company, San Francisco.
California Scientific Food Corporation, Los Angeles.
Dominion Products Company, Ltd., Vancouver, B. C.
Chilliwack Evaporating & Packing Co., Chilliwack, B. C.
Dayton Evaporating & Packing Co., Dayton, Oregon.
Whittenberg-King Company, Portland, Oregon.
Everfresh Company, Ogden, Utah.
Luther Manufacturing Company, Walla Walla, Wash.
Natural Flavor Food Products Company, Central Savings Bank Building, Denver.

How to Make Hay

YOU want high quality hay whether you feed it or market it. But the quality is determined by the weather, the time in which the hay is cut, and the way in which it is cured and cared for.

It is well known that air curing makes the best hay. This is due to the fact that contact with the air makes the stems lose their moisture in about the same proportion as the leaves.

Sun drying evaporates the moisture from the leaves too quickly, leaving them dry and brittle and causing them to break off easily when the hay is handled. Then, too, the matter of uniform curing determines greatly the amount of nutrients retained in the hay, it having been demonstrated by experiments, and known to practical hay growers and feeders, that properly cured hay has a higher feeding value than that which is poorly cured

What Air-Curing Does

The two processes of air-curing versus sun-drying may be illustrated by comparison with two trees cut in the early summer. If the branches are trimmed off one but left on the other, you will find two or three months later if you saw off the trunks that the sap is still in the tree from which the branches are cut, but there is none in the trunk still retaining them. This is due to the fact that the greater the amount of surface there is exposed, the more uniform and thorough is the drying out.

In the flat swath the leaves and stems are unevenly dried out. But through the process of curing in the windrow or the cock the free circulation of air throughout the hay makes it brighter, greener, heavier and more palatable.

Time and weather are the great factors in haying. Labor is usually scarce, while the hay must be cut at a definite stage of maturity, cured to a proper degree, and handled and stored or stacked in the least time possible. Efficient haying machines are the best investment the hay grower can make.

The Surest Way

A safe, sure, paying way to make hay is this:

Cut at the proper time; rake into windrows with a side-delivery rake; load with a mechanical loader; and store as quickly as possible. Three different combinations of machines, as shown in this book, may be used, determining on the size of the farm, kind of hay, etc.

For medium-size farms rake into windrows with side-delivery rake and follow with windrow loader; or use rake-type loader direct on swath. If hay is unusually heavy it may be necessary in some cases to clean up with self-dump rake. Use swath and windrow loader, which does away with cleaning up with self-dump rake.

For large farms rake direct from swath and carry to stack with sweep rake. Stack with swinging or overshot stacker; or, rake and stack with the combined sweep rake and stacker

Speaking of hay, it is probably not generally known that California is one of the biggest hay-producing States in the Union. Last season California produced over 4,800,000 tons of both tame and wild hay, which was nearly seven per cent of the total amount raised and cut in the whole country. This year there will also be an enormous production, though it may not reach last year's figure, owing to the drought of last winter

Cash for Farmers

By David Lubin.

THERE is need for a system of [illegible] credits on open account, [illegible] while only a limited number of farmers are interested in mortgage [illegible] almost every farmer would be [illegible]ted in open account credits.

Very few farmers, if any, have cash [illegible] hand; they are, therefore, generally [illegible]ged to meet their current expenses [illegible]ying on credit.

This, in substance, is an indirect [illegible]d of money borrowing, and such [illegible]ct borrowing is an expensive [illegible]y. For instance, the price of a [illegible] saw, a dress, manure, when [illegible]ht for cash is, as we know, quite [illegible]ferent matter to when it is bought [illegible] credit.

The country storekeeper is generally blamed for it all, and often unjustly, [illegible] buying and selling as he does on [illegible]g time credit he also is a victim of this vicious system.

Cash Basis Needed

Now, this system could be done [illegible]way with at a stroke if the farmers [illegible]ere able to place themselves on a [illegible] basis, which could be done under [illegible]e present rural credit system by enlarging the powers and functions of [illegible]e twelve Federal Land Banks so [illegible]s to add to each of them a "Department for Farm Credits on Open Account."

[illegible]id department would issue, at the [illegible]quest of a farmer, a modified mort[illegible] in the form of a security certi[illegible]ate drawn up by the Land Bank, [illegible]orded on the County Records, and [illegible]tested on the certificate by the [illegible]unty Recorder of Deeds.

This certificate would be held by [illegible] Land Bank, which would detach [illegible]refrom a perforated portion which [illegible]ld endorse and hand to the ap[illegible]nt farmer. This detached portion [illegible]ld show that the farmer is good [illegible]r a stated line of credit, not to ex[illegible], as a rule, one third of the [illegible]ount of the mortgage loan which [illegible] could obtain on the land, or one-[illegible]th of the land's value; and the [illegible]nd Bank's endorsement on the [illegible]e would make the Land Bank [illegible]nsible up to that amount.

A Checking Account

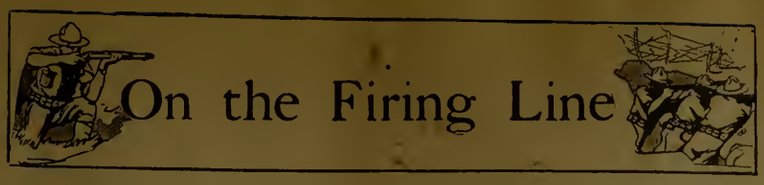
[illegible] depositing this detached portion [illegible] the certificate in a commercial bank [illegible] any section of the Union the [illegible]rmer could then obtain credit on [illegible]n account at the rate, say, of 5 [illegible] cent per annum up to the stated [illegible]t. He could then draw against [illegible] account by check from time to [illegible] as he would require.

There is no better way, as it seems [illegible] me, to deal with the problem.

This would place the farmer on [illegible] what the same basis as the mer[illegible]t, which is right and fair.

[illegible]e Land Bank system is good as [illegible] it goes, but it does not go far [illegible]h.

Let us take, as an example, a farm [illegible]d by the Federal Land Bank at [illegible]000 and recognized by it as good [illegible]ity for a $10,000 long-time mort[illegible] loan. And let us say that the [illegible]r desires a line of credit on open [illegible]t for $3000. The Land Bank [illegible] then proceed, through its De[illegible]nt for Farm Credits on Open [illegible] to issue the certificate; have [illegible] transaction recorded on the [illegible] Records; and attested on the [illegible]te by the County Recorder. [illegible] step would be for the Land [illegible] to endorse the perforated por[illegible] certificate, and detach and [illegible] the farmer. The farmer [illegible] deposit it in a commercial [illegible] any section of the Union, [illegible] would be given a line of [illegible] account for the $3000, [illegible] he would draw by [illegible] for any amounts that he [illegible] within the stated limit.



Soldier's Battle Risks

THERE is in the province of Quebec a military hospital commission which has been keeping account of the manner in which Canadian troops have fared on European battlefields. We have heard so much about the high percentage of casualties among the Canadian troops that it has come to be believed pretty generally by the people of this country that American boys who go to fight in France are likely to have a very poor chance to come home alive or free from injuries that will disable them for life. Basing its computations upon the experiences of Canadian soldiers in the war, the military hospitals commission furnishes these statistics:

The boy who goes to the front has twenty-nine chances to come home as against one that he will be killed.

He has ninety-eight chances to recover from a wound against two that he will die because of wounds received in battle.

There is one chance in 500 that he will lose an arm or leg.

It is explained also that in this war only one man dies from disease as against ten to fifteen who fell victims of various diseases in other wars. This estimate is proportional.

But 10 per cent of the Canadian soldiers disabled on the battlefields are rendered unfit physically to engage in their former occupations.

There ought to be cause for general encouragement in these figures.

Rise of John J. Pershing

ODD as it may seem in a fighting man, General John J. Pershing's one fad is gardening. His father was an expert gardener, and the taste descended to the military man. Whenever he was on leave, he immediately would don working clothes and go into his father's garden, seemingly enjoying the work among the vegetables as much as his army duties.

It was a newspaper article which diverted John J. Pershing from his purpose to become a school teacher and started him upon the military career which led to his appointment as a General in the United States army and commander of the American expeditionary force in France. The story is told by General Pershing's sisters, Mrs. Butler and Miss May Pershing, who are residents of Lincoln.

It was while General Pershing and his sister, now Mrs. Butler, were attending the Missouri State Normal School at Kirksville, Mo., that his attention one day was called to a newspaper announcement that examinations were to be held for appointment to the West Point Military Academy. Young Pershing asked his sister's advice as to whether he should try for the appointment, and she advised him to do so. Then followed a short season of intensive study in preparation.

In a few days he was called before the examining board, and, although improperly prepared, received the highest mark among the contestants, and soon afterward was notified of his appointment. Up to this time his action had been a secret between his sister and himself and it remained so until he was ready to start for West Point.

As a boy, General Pershing, his sisters say, was of a quiet, serious temperament, assuming, as the oldest of six children, many of the responsibilities of the family.

"John," Mrs. Butler said, "although of a quiet disposition, liked a good time and enjoyed fun as much as anyone. Yet when he started anything he wanted to get the result, and he generally attained that object before he gave it up."

After having been graduated from West Point and having served with General Miles in a campaign in New Mexico against the Indian chief, Geronimo, Pershing was stationed as military instructor at the University of Nebraska. His friends there remember him as a fun-loving young man, who enjoyed music and dancing, parties and other social activities, and who appreciated a good joke.

"Old Jack Best," the veteran trainer at the university, remembered Pershing intimately. "He was one of the finest men I ever worked with," said Best. "It's true he was mighty strict with his work, but the results he got were so good that everybody he worked with loved him for it.

"Usually he was mighty dignified in his work, but he had a way of getting next to new men," continued Best. "The first time I ever saw him he walked right up to me, slapped me on the shoulder and said: 'Well, Jack, they tell me you got along mighty well with my predecessor. If you did, I am darned sure we'll get along just as well.'"

Bird's Song Draws Fire

HOW one little canary bird caused consternation among an entire division of British troops and brought down upon its own head a hurricane of rifle fire and finally point-blank shell fire, is told by Dr. Robert Davis, recently arrived in the United States to lecture at the officers' training camps on the activities of the Red Cross in Europe.

For more than a month on a northern sector of the line the British had been secretly mining beneath the German trenches. The work was almost complete. During the operations several canary birds were, as usual, kept in the excavations to warn the workers of the presence of fire damp, which is fatal to the birds. One little songster, however, escaped from its job, flew into the middle of "No Man's Land," and, alighting on a bush, began to sing.

Consternation reigned in the British lines. If the bird should be discovered by the Germans the work of weeks would go for naught, as the enemy could easily interpret the meaning of its presence and prepare to combat the sapping operations. The infantry was immediately ordered to open fire on the canary to destroy it. But it seemed to bear a charmed life. Even the sharpshooters failed to bring it down as it hopped from twig to twig. Finally the artillery had to be called on. A trench gun with a well-timed shell blew the bird and the bush and the song into nothingness.

Camouflaged Food

VORWAERTS, the Socialist paper of Germany, complains of some of the food substitutes to which the people are reduced.

A salad oil, for example, called variously salatin, salatol and salatrinol, is made of mucus, marshmallow and a little lemon juice or vinegar. This sells at 6 marks the litre.

Then there are artificial milk, made from chalk, plaster and wood flour; bouillon cubes, in which there is nothing but aromatic herbs and salt; to say nothing of egg powder, bakol and bakaus, which are mysteries too deep to fathom, and sausages composed of minced tendons, skin, wood flour and other indigestible substances.

ABC of Incubation

By Charles Weeks

POULTRYMEN are learning by costly experience that "any old egg" will not do for the incubator. If you have an egg with strong vitality and generations of hens behind that egg that have had a superabundance of energy, then more than half the incubator troubles are over, and, I might add, that nine-tenths of the brooder troubles are also over.

The egg should be placed in the machine as soon after laying as possible. The sooner the better.

Place the eggs on the tray with small end down, leaning them so that the large end is the higher and keeping them in this position during the incubation period.

After the machine is warmed up and regulated to 102 degrees or thereabouts, place the eggs in and do not turn for three days. Then they may be turned twice each day, being careful to get them into the machine quickly up to the seventh day. After the first week let them air a little at first and increase the time of airing up to the time they begin to pip.

Turn Eggs Twice Daily

At no time let them cool below 80 degrees and only once each day. I have had excellent hatches turning the eggs once a day, but I think results warrant turning twice per day.

The eggs should be tested on the seventh day and all the infertile ones taken out.

The temperature should be kept between 102 and 103 degrees and the steadier the better the hatch and stronger the chicks.

The incubator should be placed in a basement or cellar where the outside temperature is very even. Never under any circumstances allow the temperature to go above 103 degrees.

The temperature should arise quickly to 103 degrees after eggs are placed in the machines.

Moisture in Hatching

The egg wants a dead air space for incubation and yet have some way to get rid of the gases thrown off. In most of our artificial incubation moisture is supplied, especially at hatching time. There should be enough moisture at hatching time to collect on the glass at the front of the machine.

Incubation requires very patient, methodical work, with extreme care in regulating temperatures.

Filling the lamps, trimming the wicks, cleaning the burners, regulating the flame is detail work that requires care. Turning the eggs carefully twice every day is a light task, but takes time, and it is a routine that leaves the mind free for thought.

To sum up incubation: Place only good uniform eggs from mature stock in the machines, little end lowest. The temperature should be regulated to about 102 degrees when eggs are placed in the machine and run steadily between 102 and 103 degrees during the whole period.

Turn the eggs twice daily after third day and air slightly after first week, increasing time as germ grows older, but never let them cool below 80 degrees. On the eighteenth day put moisture in the moisturepan. This should be steaming water, so that the humidity is brought up in the machine.

A steady temperature is the prime factor in bringing out a good hatch. Eggs from sturdy stock of mature age with males and females unrelated will give best results.

There is a way to do the right thing in the right place at the right time, and if we can make this doing count while we are getting experience in poultry raising then we save time.

AVERY TRACTOR

The lightest and best tractor built. Designed especially for small ranch and orchard work. Burns distillate and other low grade fuel. Does the work of four horses. Costs half its nearest competitor. It is the biggest value and most economical to operate.

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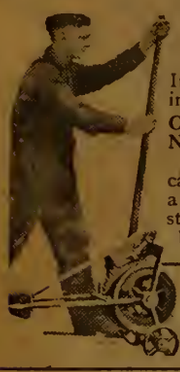

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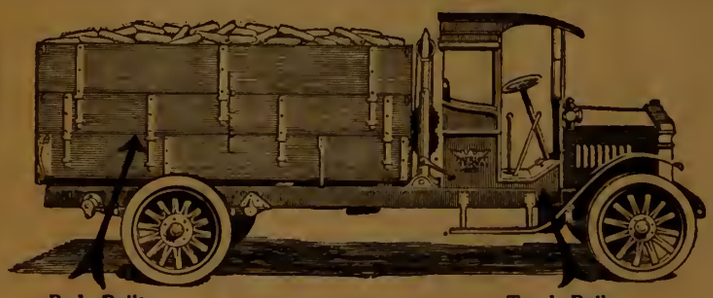

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Patriot Farm Truck

The farmers of America now have what they have been waiting for—

A truck built for farm conditions and farm work.

No intelligent farmer questions the superiority of truck service over horse service for general transportation. The only question has been whether the trucks built for service over the paved streets of cities, with bodies designed for city haulage, were the proper trucks for farm use, and most farmers have felt they were not.

The Patriot Farm Truck affords the farmer economy, convenience and certainty of transportation of his crops and live stock.

The Patriot will double or treble your load capacity and cut the time of delivery in two. It makes you master of weather and roads, and cuts the distance to your market town to one-fourth.

The Patriot will increase the value of your farm $10 an acre by bringing larger and better markets within your reach. It will pay for itself within one year. Write for full information and prices.

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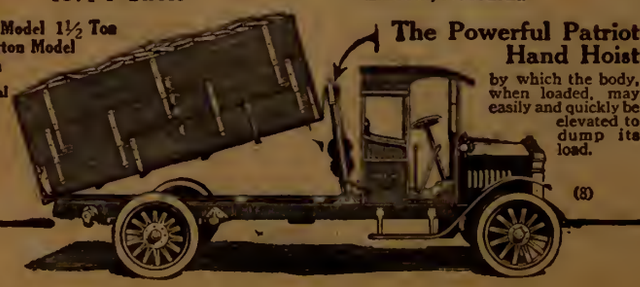


The Powerful Patriot Hand Hoist by which the body, when loaded, may easily and quickly be elevated to dump its load.

(8)

Handle Grain in Bulk

Grain Sacks Cost Too Much This Year.

A RENEWAL of the agitation for the bulk handling of grain in California has resulted from the fact that the speculation in the Calcutta jute bags has put the price away beyond what the average rancher in this State can afford to pay.

Bulk handling of the grain raised in California during the coming season would solve the problem, and if elevators, even of a temporary nature were erected at once. It is deplorable that the building of elevators and the other necessary arrangements for bulk handling have not been accomplished in past seasons. This method would have paid for itself many times over and would have saved millions of dollars to our ranchers.

At this time jute bags were selling for about 12 cents apiece. Now the price is around 25 cents.

The number of bags required for California in a normal crop season is about 25,000,000. The bags furnished by San Quentin amount usually to about 4,000,000, or one-sixth of the State's demand. The price fixed for San Quentin bags weeks ago was 20 cents each. It is assumed that this stock is now largely in the hands of farmers.

Calcutta Profiteers

The freight rates on jute bags have advanced since the war began from $6.50 to $100 per ton or about 5 cents per bag. The price of jute bags before the war began was about 6 cents, or one cent more than the present freight rate. One bag dealer who had to fill a contract made earlier in the season is reported to have bought bags in Calcutta recently at prices which will make them cost, laid down in this city about 26½ cents.

There is no question, apparently, but that importers have plenty of bags on hand. But they insist that they have laid in a supply sufficient only for the normal needs of the State. But the farmers are not buying bags at present prices. In fact, if boxes were a feasible substitute, it would be cheaper to ship most farm products in them.

Farmers Won't Buy Bags

The delay on the part of farmers in purchasing their usual supply of bags is worrying the bag trade. Of course, part of the delay may be due to the weather. The farmer does not wish to buy more bags than he has a crop to fill, and with the rainfall below normal, he does not feel confident of normal crops. But the price staggers him. He wonders who is going to be the ultimate loser as a result of the price that he pays for bags.

According to the best authorities on the subject, here is the most desirable manner in which bulk handling may be accomplished:

Haul the grain from the harvester to bins on the ranch. This is regularly done in the East, light, portable steel bins, costing at the rate of 12 to 15 cents a bushel to build in normal times, being used.

Then haul it to the country elevator, whence it is loaded into cars or barges and shipped to its destination.

In a report made over a year ago, Mr. Luke of the Sperry Flour Company, said that on unloading a barge load of 500 tons of bulk wheat the cost is less than 4c per ton from the barge to the mill bins, and the difference in weight on the bulk wheat averages about 300 pounds on each barge load of 500 tons.

Loss in Sacked Grain

Mr. Luke says that the Sperry Flour Company loses, on the average, 14 tons or one-half of 1 per cent in shipping 2500 tons of sacked grain on barges from San Francisco to Stockton. He also says that from every 500-ton barge load received there is a usual loss of from 2000 pounds to 4000 pounds, 2 per cent to 4 per cent. This loss occurs from the trucking of leaky sacks.

Mr. Dozier and Mrs. McCormick of Rio Vista are of the opinion that about 2 pounds of grain is lost for each sack that comes through the combined harvester before it reaches the warehouse. They attribute the loss to the shuffling of grain from the floor of the "dog-house" by the feet of the sewer and tender, failure to brush off the tops of sacks before dumping them, bursting of sacks in the field and on the wagon, and the cutting of the sacks by mice in the field.

New Bean Grading System

L. C. LUHR of Encinitas, Cal., has invented a lima bean grader which he describes as follows:

"The object grader is twofold: First and principally, to cull out the poppers; second, to cull out small limas.

"This grader is similar in shape to the ordinary hand recleaner, except that it should not be over 18 or 20 inches in width. At the upper end where the beans are poured into the grader, ⅝-inch half-round molding about 3-16 inch apart, forms the floor of the grader. That is, the half-rounds should be spaced so that they will freely allow the largest poppers to fall through. The spacing should be very carefully done. It will be found that the limas will slide along the grooves without going through. The half-rounds should be 30 or 36 inches in length. The beans are pushed down onto a ⅜-inch wire screen. This screen should be about 30 to 36 inches in length. This screen will cull out the small limas.

While the beans are on the screen one can cull out by hand any worm eaten or other undesirable large beans. Then the beans are ready to be put through the spout into the sack and you will find that you have seed beans of excellent quality.

"About two gallons of beans can be handled to advantage in the grader at a time. The beans should be kept very thin on the grader and never be allowed to pile up, especially on the half-round. One hand should work over the half-round and the other underneath. After a few minutes' practice, anyone will understand how to operate the grader. One man can reclean about one sack an hour. This is rapid work if results are considered."

A description of Mr. Luhr's bean and apricot ranch was given a few months ago in Orchard and Farm. Although he is of German name and parentage, he is a loyal American citizen.

Poultry Feed in British Isles

EGGS are very scarce in Great Britain because of the poultry feed shortage. When warned that grain for feeding their fowls was not coming in, poultrymen freely disposed of their flocks.

In March fresh eggs retailed at two dollars per dozen, which put them beyond the reach of people of average means. The British egg shortage has naturally resulted in additional demands for meat.

During a three and one-half year period, beginning July 1, 1914, the United States exported to the Allies more than 616,000,000 pounds of fresh beef and nearly 203,000,000 pounds of canned beef

Live Stock

How to Prevent Blackleg

By Dr. F. W. Wood,
Veterinary Director of the Cutter Laboratory, Berkeley, Cal.

BLACKLEG is an acute, rapidly fatal, infectious disease, affecting young cattle almost exclusively, although at times losses may occur among sheep and goats. This disease is caused by a tiny germ known as the blackleg bacillus, which lies dormant in the ground in spore or seed form in certain localities and is taken into the bodies of the animals with food and water, or may enter the tissues directly through scratches or wounds. In the bodies of the infected animals the bacillus multiplies rapidly, subsisting on and destroying the tissues of the animals and soon causing death from blackleg. The disease does not spread directly from sick animals to well ones by contact, but can always be traced to the presence of the bacillus in the ground.

Cattle over four months and under two years old are most susceptible to blackleg, although losses do occur occasionally among younger calves and cattle over two years old.

Some of the Symptoms

In infected herds deaths from blackleg often occur suddenly and the first intimation that the owner has of the presence of the disease is the finding of one or more dead calves or young stock. More often the affected animals show symptoms of fever and soon stop eating and chewing their cud. Severe lameness, which develops suddenly and is accompanied by trembling of the muscles and arching of the back, soon follows, and the development of the characteristic swelling of blackleg may be seen about this time at some point on the body. These swelling are at first hot and painful. Later on they become cold, painless and crackle on pressure. Swellings due to blackleg are seen most frequently on one of the quarters and do not extend below the knee or hocks. Although most commonly on the quarters, swellings may occur in other places, as in the muscles of the back, chest, neck or throat. As the disease progresses the swellings increase in size, the affected animal shows evidence of being in great distress and soon slumps down and dies. In the more protracted cases the animals are unable to get up, there is difficulty in breathing and usually convulsive struggles before death occurs.

Blackleg infection in cattle, as a rule, terminates fatally in from twelve to forty-eight hours, although a few of these cases may linger for some days and occasionally one may recover.

How to Prevent Losses

Blackleg is a preventable disease and practically all losses may be prevented by the careful, systematic seasonal vaccination of all cattle between the ages of four months and two years. Prompt disposal of carcasses of cattle dead by blackleg by burning or, if impractical, by proper burial, is important, as this measure prevents the seeding of the ground with spores. Vaccination should be completed at least a month prior to the season when the first losses have been known to occur.

For the reason blackleg makes its appearance following the rains, and seems inclined to occur during the years when feed is good and the condition of the cattle is improving. In [illegible] may be [illegible] season.

[illegible] years blackleg vaccine has been used for the immunization of young cattle against blackleg, and this form of vaccination is recognized as one of the earliest and most successful measures devised for preventing the spread of an infectious disease among animals. Like all true vaccines, however, blackleg vaccine, containing, as it does, the attenuated germs of blackleg, has certain limitations, namely the danger of possible losses following vaccination and lack of sufficient protection under certain conditions. These objections have, in a large measure, been overcome by the use of double vaccine, but this method is somewhat troublesome, as the double vaccination requires two handlings of the animals to complete the treatment.

New Immunizing Agents

Recently two new immunizing agents have been developed which overcome the deficiencies of blackleg vaccine. These products are blackleg aggressin and blackleg filtrate. They are both germ free (sterile), and may therefore be used without the possible danger of inducing blackleg from vaccination. One handling of the animals is all that is required for the administration of either the filtrate or aggressin, and castrating, marking and branding may be done at the same time, a convenience which all stockmen will appreciate.

Blackleg filtrate will be found the most satisfactory immunizing agent under all conditions, as it is germ free, therefore absolutely safe for vaccinating purposes, and costs but little more than the pill vaccine. For pure bred or exceptionally valuable stock, blackleg aggressin may be selected, but this product is objectionable for general use since it is quite expensive and its production entails the slaughter of prime calves, an economic loss not justified if the cultural product, blackleg filtrate, continues to prove as definitely protective as experiment and use so far indicates that it will. It should be noted here that too small a dose of filtrate may have insufficient protective value, and experience so far seems to point to 5 c.c as about the proper dose.

Two Kinds of Swine

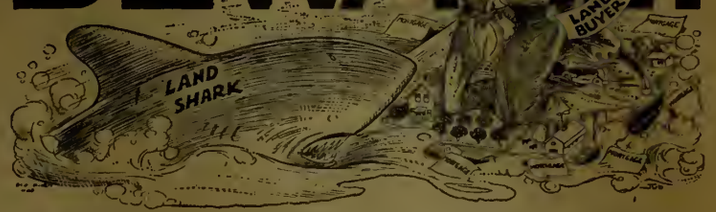
The hog supply in America has decreased alarmingly and it is imperative that ways and means be found of bringing it back to a normal footing. This, of course, applies to hogs who ride in stock cars; not to those patriotically interested in excess profits.

Imperial Valley ranchers are experimenting with hemp and some sugar cane. The raising of hogs in the valley seems to be on the decline and sheep raising has taken its place. The valley as a whole is in a very prosperous condition and crops of all kinds are yielding very heavily and at exceptionally good prices.

"What have you in the shape of cucumbers, this morning?" asked the customer of the new grocery clerk. "Nothing but bananas, ma'am," was the reply."

"Where's your little brother?"
"He hurt himself."
"How?"
"We were seeing who could lean out of the window the farthest and he won."

BEWARE!



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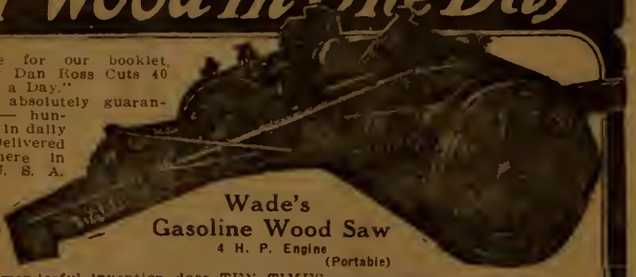

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160 ACRE FARMS IN WESTERN CANADA FREE

Fat Profits in Fig Raising

Forty Acres Produce a $9250 Crop

PEOPLE plant fruit trees to make money, and when it comes to making money, a fig orchard of the right kind, rightly handled and rightly located, is hard to beat.

It is said that in 1916 O. G. Brundage's forty-acre Calimyrna fig orchard, a mile west of Exeter, brought in more money per acre than any orchard in Tulare county, and Tulare county is no slouch when it comes to producing fruit, and 1916 was no slouch of a year for profits either. Whether it did surpass other Tulare orchards or not, it made still more profit during the season of 1917, earning as much as $100,000 out at 7 per cent interest, and Mr. Brundage has a standing offer, which he will not take, of $40,000 for the forty acres, which is pretty good for land that was bare thirteen years ago.

Reasons for Real Merit

Here are a few reasons why Calimyrna figs in a suitable location are winners, as judged by results in this place. The orchard can be brought into bearing at approximately half the expense of an orange orchard in a similar location, and orange groves are thought of by Easterners and most California fruit growers as the standard of merit and value. In other words, a man with a definite amount of capital could buy, plant and bring into bearing twice as large a fig orchard as an orange orchard.

These are the figures: Land $200 per acre; leveling and development of water $40 per acre; trees $10 per acre, normal price, only from one-third to one-fourth as many trees being required as for oranges, and those much cheaper per tree. Water, after pumping plant is in, $3 per acre (which is the electric power bill on the Brundage place); care of place till production starts, $25 per acre per year.

These costs, except for care of place, are extremely low, owing to exceptional location. Normally cost of leveling, water development and power would be far beyond these figures, both for figs and oranges. To the credit of figs it should be said that being planted 35 to 40 feet apart, instead of 20 to 22 or 24 feet apart, as with oranges, the owner could have a far larger income from catch crops while the trees were coming into bearing than he could from an orange grove similarly located, reducing the cost of care in early years to a very small sum.

Uniform Production—Small Expense

Running expenses are as important, or more important, than original cost, and according to Mr. Brundage the cost of operating a fig orchard is only half the cost, per acre, of operating an orange grove, and that counts for a whole lot, particularly when the pinch comes.

Next, uniform production is a wonderful thing with any crop whatever, fruit or field, and well located fig orchards are fine in that particular. This orchard for the past five years has given the following yields: 27 tons, 38 tons, 45 tons, 60 tons, though on account of bad fall weather 16 tons were ruined, making the income crop only 44 tons, and, in 1917, 45 tons. The gradual and consistent increase is due to the increasing size of the trees, Calimyrna figs being supported to increase in productivity every year up to 15 years, and then to retain their vigor for many decades after.

The 1917 crop was the only one that showed a falling off in the natural progress to maturity and full production. It was only a 60 per cent crop, due to the very frosty winter preceding, and a severe hot spell in June, 1917. The severe frosts of [illegible] killed the terminal buds and the [illegible] two new shoots came out for [illegible] every bud killed the fruit had not the strength of that on normally produced wood, so when a severe heat came along in June many of the early developed figs fell. Then, too, spring freezes weakened the [illegible] figs and the fig wasps in them, but even so, a crop of 60 per cent of full yield would be anything but a short crop with other fruits.

Natural Conditions

Of all the Calimyrna fig orchards the writer has visited the Brundage orchard is by far the most uniform, the trees being nearly all approximately of the same size and shape while the average Calimyrna fig orchard looks uneven and irregular, owing to misses and half grown trees. A [illegible] per cent stand was gotten in the last year's planting.

This orchard is located on red sandy clay soil—the regular hog wallow often bordering the Sierras, pesky soil to level and get into condition, but very strong when subdued. This is recognized as an ideal soil for figs, sandy soil encouraging root troubles. There is hardpan under most all of this type of soil, which usually has to be dynamited for tree planting. It is not dynamited in the orchard, but Mr. Brundage may do some dynamiting later. The trees, by the way, were set out only 25 feet apart, and have considerable room to grow in yet, but will interfere in time and would have been better if planted 35 or 40 feet apart.

The fig orchard is located right on the edge of the citrus belt and is therefore favorably situated as to frost. Possibly for this reason Mr. Brundage has had little or no trouble with caprification, which seems to be about the main stumbling block toward success with most growers. Caprification consists in placing wild or capri figs, containing insects that carry pollen to the developing Calimyrna figs, in the Smyrna trees at the proper time, so as to make the Calimyrna figs develop properly. In this orchard a paper bag is tacked to every tree, the mouth being kept open, and capri figs are dropped into these bags every few days for a period of about two weeks. Mr. Brundage would advise wire baskets instead of paper bags, as the insects would get into the air easier.

This spring he will plant six acres to capri figs, of Roeding No. 3 and Milco varieties.

Lime and Cover Crops

Heretofore no cover crop but natural winter growth has been grown, but Mr. Brundage is giving the land a dressing of two tons of lime per acre and will also plant bur clover. The lime will be good both for [illegible] and clover. Henry Markarian, the fig expert of Fresno, claims that lime has made his percentage of split and sour figs, which are a big item in Calimyrna fig production, fall from [illegible] per cent to a half of one per cent. The bur clover will provide humus and nitrogen.

It is only 10 feet to water where the well is that supplies irrigation water for the ranch and so pumping is inexpensive. Irrigation has been by flooding in the old way, but an underground cement pipe line is being installed, so that the orchard can be irrigated according to the standard system of orange irrigation.

A Word About Prices

The figs are not processed on the place, but are sold to packers. The total cost of operating this orchard

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...ny kind of farm machinery you don't ...d want to sell. No matter what it ...e us, giving us a good description ...at you have. We want hay balers, ...tors, plows, harrows, drills, har... machinery, threshing machines, ...ters and grinders, fanning mills, ...s, gasoline engines, tractors, ...ith tools, belting. In fact, any... ...d everything you have to sell.

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...carry the largest stock of new and used machinery of any firm in the State. Visit ...or write us and save money.

THE SELF-OILING WINDMILL

...ecome so popular in its first three years that ...nds have been called for to replace, on their ...w...rs, other makes of mills, and to replace, at ...ost, the gearing of the earlier ...t...rs, making them self-oil... ...enclosed motor ...s in the oil and ...s cut dust and The Splash Oiling ...y...tem constantly ...every bearing with oil pre... ...g wear and enabling the ...to p...mp in the lightest breeze. ...he ...l a...pply is renewed once a year. ...e Gears are used, each carrying half the load ...make Gasoline Engines, Pumps, Tanks, Supply Goods and Steel Frame Saws.

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DIAMOND FLUME GATE
Watertight—Can't Clog

Reduces water expense by reducing the amount of water needed to do your irrigating. No clogging; this feature alone saves time and labor. Close fitting and accurately adjusted prevents any waste of water. Is watertight. Gates are made of high quality sheet metal. Made in three sizes—1 inch, 10c; 1½ inch, 12c; 2 inch, 15c; 10 per cent discount in lots of 500 and over. Tubes made of any length from 2 to 3 inches—longer tubes to order. The water saved pays for gates in very short time.

...ndersen Flume Gate Company,
Redlands, California.

4 H.P.—190 lbs.

The 4 H. P. Cushman Handy Truck is ...e most useful outfit ever built for farm ...k. Engine weighs only 190 lbs., and ...e outfit only 375 lbs.

...ides doing all farm and household ..., this 4 H. P. Cushman may be lifted ... truck and hung on rear of binder ...r...g harvest to save a team. In wet ...ther it saves the crop.

Light Weight Cushman Engines

...ilt for farmers who need an engine ...o m...y jobs in many places instead of ... ...n one place. Throttle Governed, ...hebl...r Carburetor. Run very ...y ...l...tead...y—not with violent ex... ...d f...t and slow speeds like old... h...vy-wei...hts. Engine Book free.

CU... AN MOTOR WORKS
... 2...t ...eet Lincoln, Nebraska

8 H.P.—320 lbs.

during 1917, including cost of water, cultivation, picking of fruit, and all, not including interest on investment, ran under $2000. The crop sold for $9250, the contract price for merchantable fruit being 12 cents a pound, war prices, on account of imports being cut off from Asia Minor. This coming year an offer of 13 cents a pound was made, and refused.

After the war prices will fall immensely, but they can still do so and be fair. For example 45 tons at five cents a pound, $100 a ton, would mean an income of $4500, or $2500 to pay interest on the investment.

This last year, by the way, several tons of fruit were not harvested, owing to lack of help. The country was scoured for pickers and as high as $15 a ton was paid for picking, but still not enough help could be secured

Favors Black Mission Figs

Results on this place, every fruit grower will see, indicate that the Calimyrna fig is a marvelous money maker. What can a person say when he learns that Mr. Brundage is to plant no more Calimyrnas, but will plant 60 acres of Black Mission figs instead?

Why? Black Mission is a very sturdy grower, a heavy producer, and will increase in yields five years longer than the Calimyrna. In addition it will give a fair sized summer crop and the regular fall crop as well, which latter will normally be larger than the Calimyrna crop. The figs do not sour nor split.

The Black Mission is a fine shipper and yet has a skin as delicate as tissue paper, while Calimyrna, Adriatic and Kadota figs have skins like leather. Lastly, the big packers, who know markets, were one of the main causes of Mr. Brundage's choice of the Black Mission. This reference to the Black Mission is made on account of its importance, when the owner of an orchard like the one described selects that variety for planting in place of the one which is paying him so handsomely.

Figs in the right place make a very cheap orchard to establish, a very cheap orchard to operate, a marvelously consistent producer, and an immense money maker.

The Road to Wealth

DOWN at the grocery one night
Was sittin' me and old Ad White,
Morg Keltner, Perkins and Hod Banks,
And half a dozen other cranks.
Morg read the Terre Haute Gazette—
The only daily that we get—
And no one seemed real anxious for
Another long and bloody war.

"By gosh," said Perkins, "If my corn
Matures, as sure as you were born,
I'll make my pile of dough this year;
An early frost is all I fear."
"Well, Perkins," spoke up old Ad White,
Your crop of corn is sure a sight,
But buildin' houses, like I do,
Would be a safer bet for you."

"Say, boys," said Keltner, "give me time;
I'll make my roll in any clime.
Hoss doctorin' brings in the cash,
Though everything be gone to smash."
Wes Sexton chimed in: "Well, they say
That mushroom growin' is the way
To wealth, but I can't get the spawn,
So I've some fine shotes comin' on."

Hod Banks, who drives the ten-cent dray,
Perked up, of course, to have his say:
"If I," said he, "should start again,
I'd ... like lots of other men;
Loan out my cash at ten per cent
And wax fat on the increment."
Just then a fresh plug cut he took
And said: "Sil, put this on the book."

—H. C. K

Low Price Ranch Houses

STYLE 49 — **$475** Contains 2 bedrooms, dining, kitchen, bath, porch. Full specifications and floor plan in Bungalow Book.

STYLE 46 — **$345** Contains bedroom, living, kitchen, bath, front and rear screen porch. See Bungalow Book.

PACIFIC READY CUT HOUSES
AS LOW AS $33

We must increase all prices on Pacific Houses soon. Our present prices are far below what they should be. By placing your order at once you make the biggest savings in the history of home-building. Our structures guaranteed to be staunch, accurately cut, free from defects. Immediate deliveries. You deal with the largest house manufacturers in Western America. Reference: L. A. Trust & Savings Bank.

Pacific Houses save you time, money, trouble, risk, worry. You get better construction, better lumber, better plans.

FREE BUNGALOW BOOK

Send 15c to cover mailing costs and we will send you a copy of our illustrated 84-page Book of Designs, containing miniature blue print floor plans and full details. When in Los Angeles visit our sample houses at Exhibition Grounds.

Pacific Portable Construction Co. (Inc.)
1490 South Hill St., Los Angeles.

RIGHT BACK DOWN THE SAME ROW WITHOUT LIFTING OUT THE TOOLS

Note *This*, Farmers and Growers

"Right-About Face" with FULL POWER!

Remarkable Performance with Small Tractor

BEFORE you write out your check for any tractor, note how the Bean TrackPULL turns right around into the same row with *tools down deep all the way, without pivoting*, or *overloading one side* of the tractor, or doing *anything else* that is injurious, or difficult, or that a tractor shouldn't do. Note how this tractor takes its turn with its *full load*, just as easily as it takes the same load down the *straight-away*. Note the reason for this in this tractor's *single track* with which *it pulls* and *you steer*. See how *easy* it is to steer, and how that great PATENTED SINGLE TRACK FEATURE also makes the TrackPULL Tractor as *flexible as the best team you ever had.*

Bean *TrackPULL* Tractor
With Patented Front-Drive

"Almost Like Animal Intelligence"

"Mine acts like it understood—almost animal intelligence," is the way one man puts it—and you'll want that, too, in a tractor. For ease of handling, as well as the ability to make right-about-face turns with full power, has *got to be* in the tractor you use in an orchard or vineyard or in the field, where there's a lot more than just straight-away work to do.

Be careful about "acrobat" tractors—for tractors that will spin around at a fair aren't necessarily tractors that will *turn short with a full load in the field.* Make them demonstrate to you with their tools hitched on.

Send right now for the Bean TrackPULL catalog, learn the price of this great machine, and get the name of the nearest factory agent who will demonstrate how the Bean TrackPULL Tractor does the kind of work that's waiting for it *on your* place. Mail us this coupon, now before you forget it. Find out the truth about tractors right now!

Bean Spray Pump Co.,
1..5 W. Julian St., San Jose, Cal.
... N. Los Angeles St., Los Angeles, Cal.
Please send Tractor Book with full information about the Bean TrackPULL Tractor

Name ....

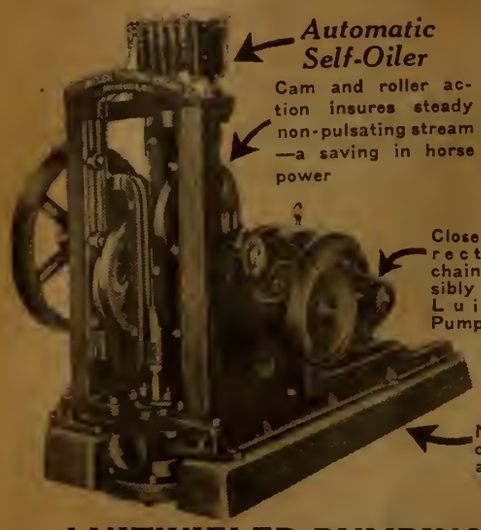
Street ....

City ....

County .... State ....

No. of acres .... Kind of crops grown ....

One of the Many Types of Pumps



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Cam and roller action insures steady non-pulsating stream—a saving in horse power

Close coupled direct connected chain drive, possibly only with Luitwieler Pumps.

No pit—all parts of power head above ground.

Belt Driven. Direct Gear Driven. Engine Driven. Pumps for Irrigation. Pumps for hydro-pneumatic Pressure Systems. Automatic hydro-pneumatic systems complete. Engineering advice available at this branch. A saving of from 10 to 25 per cent of power over other types of deep well plunger pumps.

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707 N. Main St., Los Angeles, Cal.

FOOD WILL WIN THE WAR. DON'T WASTE IT!

The Sun Fruit Preserver

has been given a certificate of approval by the Good Housekeeping Institute of New York City

Vegetables, herbs and deciduous fruits, when placed in the Preserver, part with 80 per cent of their weight and bulk. They are sterilized, cured and permanently preserved. Keeping in perfect condition from one season to the next, equal in quality and nutrition to those fresh from the garden.

On account of the uncertainty of present transportation conditions we make it possible to get a Preserver quickly at the minimum cost. Make it yourself, the construction is simple.

Send for pamphlet containing instructions for making Sun Fruit Preservers of any size, and recipes for making Sun Rayed Jellies, marmalades, preserves, fruit butter, sunshine pineapple, crystallized figs, fruit confection, etc., for desiccating sweet corn, peas, onions, carrots, parsnips, mint, celery, deciduous fruits, etc. ONLY 50 cents. "DO IT NOW."

E. E. DOW & SON, Redlands, Calif.

The Holt Manufacturing Co. Inc.
STOCKTON California
PEORIA Illinois
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Efficiency

The efficiency of the modern big guns is dependent upon the materials used and the precision of manufacture. The same care in the choice of materials, the same precision in construction, make the "Caterpillar" Tractor the most dependable, most efficient tractor. Many parts of this tractor are not permitted to vary the fraction of a hair's breadth from fixed standards. All materials are selected especially for the work they are to do. The result is power, endurance, economy. Let us send you complete information about the "Caterpillar" Tractor

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REG. U.S. PAT. OFF.

Big Power Farming Show

Davis Demonstration Beats Them All

Some of the Exhibits at Davis

THAT California should have been able to give the greatest power farming show ever held in the whole world is not surprising, considering the interest taken in tractors and other gas motor machines in the Golden State.

The enormous exhibition, or series of exhibitions, given at Davis, Cal., from April 17th to 20th, will be remembered as a very noteworthy event in tractor history on the Pacific Coast. Many Eastern visitors who had attended the Fremont and other demonstrations were willing to award the palm to the California show without hesitation.

President Bartholomew of the Thresher and Tractor Section of the National Implement and Vehicle Association, who attended the demonstration, said that in some respects it was superior to any he had ever attended, and he had seen all the more pretentious ones.

There were over 200 dealers in attendance and nearly all of them were exhibitors. Thousands of people journeyed to Davis in automobiles, some of them coming hundreds of miles Los Angeles was represented by a delegation of 25. There was another party of 15 from Portland, Ore., and a dozen representing tractor firms of the Middle West.

A Patriotic Banquet

One of the big features of the week was a patriotic banquet, presided over by W. H. Gardner of San Francisco, who was toastmaster

Mr. Gardner opened with a toast to the United States and to President Wilson. Douglas Boswell of Sacramento was the chairman of the entertainment committee which made all arrangements for the affair.

Toastmaster Gardner called on President Bartholomew of the National Association, on President H. L. Marsh of the Southern California Traction Engine and Implement Association and on Professor J. B Davids of the Division of Farm Engineering, University Farm, Davis.

President Bartholomew congratulated the Pacific Coast men on their great showing at the demonstration and urged support of the National Association.

President Marsh of Southern California marveled at what was being done in Interior California and welcomed the tractor men to Los Angeles next fall for the southern demonstration.

Professor Davidson was announced as the man who originated the idea of a California Tractor and Implement Association.

Singing War Songs

War songs were sung by the tractor men and every word that was spoken during the dinner had to do with the increase of food production through the tractor.

At the close of the dinner voices were raised in the singing of "The Star Spangled Banner" and the patriotic fervor reached a high pitch.

The men adjourned to the lobby and continued to sing America's national anthem.

The attendance exceeded all expectations. On the first day there were 3000 automobiles on the field adjoining the University Farm grounds which indicated an attendance of at least 5000 persons, possibly twice that many. Since the demonstration was scattered over fields some two miles one way by a mile and a half the other it was difficult to estimate the crowd.

Private demonstrations were given by the various companies on the morning of the 17th, and in the afternoon a parade of machines to the public demonstration grounds was witnessed. Machines of marvelous sizes and shapes moved along, some of the large ones with a small string of plows and some of the small ones with a long string of plows. There were forty different types of tractors and twenty-five different factories represented.

Truck Men There, Too

Besides the great display of tractors, the big tents on the exhibition grounds were crowded with every model and make of motor truck on the market The truck show was the largest ever held on the Pacific Coast even including that at the last San Francisco Automobile show.

Of much interest to the tractor and truck men as well as to farmers were the daily experiments on a draw-bar pull of a tractor being conducted by Professor J. B Davidson of the University of California

The demonstration concluded with a grand parade on the 20th, and was followed by the annual University Farm picnic, which was a very enjoyable affair.

Squirrel Poison Precautions

DURING the squirrel eradication campaign in Lake County, one of the questions most frequently asked was: "Will poisoned barley injure cattle, hogs and sheep?" Poisoned barley will not injure cattle if scattered according to directions instead of placing it in little piles near the mouth of the burrows. The same applies to hogs, although somewhat more care should be taken than with cattle.

It is known that hogs in very poor condition, if eating several of the poisoned squirrels will be affected. If the hog is in good condition or fat the danger is greatly minimized

With sheep you must be careful, as sheep will pick up poisoned barley as easily as the squirrels will For this reason in sheep pastures when poisoned barley is distributed, care should be taken to place poisoned barley within the burrow and, if possible, always stuff up the hole with the newspapers.—G. H. Heske, California State Horticultural Commissioner

Edwin Markham, author of the "Man with the Hoe," who is a contributor to Orchard and Farm occasionally, works in his vegetable garden every day

Good Goats Scarce

Why Not Raise a Few?

EVERY day letters are sent to Orchard and Farm asking where the writers can buy a few of the best breeds of goats to start the industry in a small way. The inquiries are rather difficult to answer.

At the present time good goats are scarce and high priced. Even grade goats that used to sell at from $5 to $10 now sell for $25 to $75 and there are not very many offered at that price. One cannot buy a pure bred doe for less than $100, and the best pure breds are being offered at $200 to $300 each.

Milk goats are easy to care for and are seldom sick, but contrary to common opinion, they do not do their best when fed on brush and tin cans. A good goat will make milk just as cheaply and sometimes more cheaply than a cow and they should be as well fed. Goats will do fine on green pasture but if kept on dry grass or on hay they should have a pound or two of grain a day when in milk.

A Good Milker

A good goat should milk close to a gallon a day when fresh if fed properly and should keep up a good flow from six to twelve months. California Gretel, pure bred Toggenburg, and champion milk goat, averaged over a gallon a day for an entire year.

Goats have been known to milk as long as two years in one lactation period. The per cent of fat in goat's milk is not very high in most goats and will probably run about 3.5 per cent on the average. The per cent may vary all the way from 2 per cent to 7 per cent depending upon the breed, the condition of the animal, and the period of lactation.

The Nubian is supposed to test high, while the Toggenburg tests low although if fat when fresh, the latter will test high for a time, and they usually test high near the end of their lactation period.

Care of the Kids

The most profit from pure bred goats lies in the kids and great care should be used in giving them a good start. It is best to leave the kids with their dams for several days and keep them in a good warm place as they are very susceptible to pneumonia.

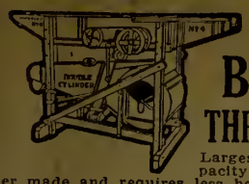
The kids may be taught to drink from a pan or to suck a bottle. The latter is the easier way and perhaps the safer way as some are very stubborn about learning to drink and may get sick before they will learn. After they are a few weeks old they should be taught to drink as they are less trouble to feed in this way.

The kids should be fed three times a day for the first few weeks and the milk should be measured out to them, feeding about a pound a day to begin with and only increasing the amount as the appetite of the young kid demands it. If the goat's milk is wanted for cheese, the kids can be gradually weaned to cow's milk when a month or six weeks old. At this time a little hay and grain may be given them. Well grown kids can be weaned at six or eight months old, but should have some grain or green pasture until a year old.

Motorists Spare the Fowls!

MOTORISTS have been asked by the Food Administration to respect the life and limb of fowls on highways. The chicken that you run today may be your Sunday dinner a few months hence.

Fowls are not actually killed, however, very often to cause them to become robbed through inability to secure their feed as usual. Losses have been increased so much in recent years that they are [illegible] the inroads made [illegible] hawks and all



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California Implement Co.

122-124 N. Los Angeles St., Los Angeles

Hercules Gasoline Engines
1½, 3, 5, 7, 9, 12 horsepower.

The Hercules Gasoline Engines

Are the most complete up-to-date engines made. Has less parts and fool proof. Fitted with a Webster oscillating magneto, always ready for operation—no batteries.

PUMPS FOR ALL PURPOSES.

Woodin & Little

Pump House,
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San Francisco, Cal.

The Ball Tread

The weight of the machine rests on the polished steel balls—they roll easily—requiring little power—leaving the most of the energy generated by the engine for hauling the load.

Solid, well-built road-beds, with heavy steel rails, enable the modern railroad engines to haul freight trains of more cars, and heavier loads than ever before.

It's the same with the **Ball Tread Tractor** gliding on its steel balls—big loads are easy to haul.

Every part of the **Yuba** is accurately machined, and made from the quality of steel best suited for the hard usage; for plowing deep, turning up new, fresh soil to give greater fertility; for working day and night, in all kinds of weather, in all kinds of soil; for economy in labor and time.

YUBA

Yuba Manufacturing Company

Department J

433 California Street

San Francisco

Factories at
Marysville
and Benicia

Model 12-20
Model 20-35
Model 40-70

Bailey Millard, Editor.

The Most Terrible Thing in the World

THE other day in a crowded trolley car the editor of this paper overheard a painful little conversation. Two women were discussing diseases, symptoms and hospital operations.

"Isn't it terrible to have cancer?" said one of the women. "She can't possibly live through it. It's the most terrible thing in the world."

The editor felt like going over to the calamity promoter—for that is what these hospital-operation talkers are—and saying to her:

"No, madame—there is a far more terrible thing than cancer or any other disease, and that is fear. And it is quite likely that your friend's malady was caused by it, for most people are scared to death. Isn't it a beautiful day?"

Of course, it would not have been polite to have interrupted the gruesome conversation in this way. And yet the woman needed just such a little lecture.

It seems rather a strong assertion to say that most people are scared to death. What about infant mortality? The child does not know mortal fear True, but the parents know it, and many and many a babe has gone to its death through the fatal fear of its father and mother.

The children of parents who live in the belief that death is not hounding their offspring at every turn are bound to be healthier and are far more likely to live through the tender period of babyhood.

As a rule, a man or woman who is always of good cheer will survive any of his gloomy friends or relations.

These facts are borne out not only by the observations of mental scientists, but by physicians of the old school.

The chief cause of that great modern disease, nervous prostration, is fear—the anxious, worried condition of mind in which a person finds himself who has not cultivated a state of poise—a serenity to which he clings even among the most complex and harassing conditions.

When the seer of Bagdad was told that a thousand people in his city had died of the plague, he said: "One man died of the plague—the rest were scared to death."

Worry, a most common malady, is the commonest form of fear. Worry is very insidious. Many persons will tell you they never worry, and yet, if the truth were known, they are full of it all the time. They rush to get through with some piece of work which they fear they cannot finish at the appointed hour. They fear that if they eat this or that it will disagree with them, which, in such a case, it surely will. They lie awake nights thinking about a mortgage that is coming due or some other obligation or duty which they fear they cannot discharge. And yet they will tell you, "I never worry"

Most people who have what are known as heart symptoms die of fear If they were to forget their symptoms—banish all thoughts of them—generally speaking, they would get well.

And so it is with many other maladies. They are not only caused by fear, but they are aggravated and intensified by it.

Yes, fear is the most terrible thing in the world. It is about all we really have to fear. If we could banish it we would put the world forward a thousand years.

Fear was the cause of the present war. The Prussian military autocracy was built up because of it. The Germans were obsessed by the senseless belief that other nations were threatening them, or would get trade that they coveted Had they been less cowardly they would not have organized their gigantic and supremely silly army; but, having that army, they proceeded to make use of it.

Fear has prolonged the war—the fear on the part of the Germans that they might not be able to make satisfactory peace terms.

As with nations, so with individuals. In our daily lives let us not be ruled so much by fear, anxiety and suspicion as by valor and frankness. Let us carry with us the words of the gentle Syrian, who said, "Fear not! Lo, I am with you alway!"

Just a Word to the Wise Woman

NOT every farm paper in this country is publishing cartoons from the pens of such world-famous artists as Raemaekers and Gibson.

For the past two months Orchard and Farm has printed the cartoon work of the celebrated Raemaekers, and in this issue it presents a striking picture, "Uncle Sam to the Farm Woman," by Charles Dana Gibson.

Look at the Gibson cartoon closely. What is Uncle Sam saying to the woman?

He is telling her of her sisters in France and Flanders, ravished and beggared by the heartless Huns.

He is telling of devastated towns and villages, of orchards, meadows and wheat fields laid waste by the iron heel which would set itself upon the souls of the womanhood and manhood of this country were it given half a chance.

He is telling this poor American woman, who has given her sons to fight the strutting military autocracy of Prussia, that she must do even more than that by way of sacrifice, she must see to it that not one ounce of the precious food so sadly needed across the water shall be wasted.

He is telling her of what wise men and women in her own country are doing in order to eke out the wheat rations to our soldiers and those of our noble allies

"See," he says, "what they did in Kentucky when they were asked if they would eat corn bread for a year. 'We will do it,' promised the Kentuckian representative to the Food Administrator. 'Our people will eat corn from now until harvest if it would help to win the war'" Uncle Sam is telling the American woman that that is the spirit that is running like a flame through the whole country.

Uncle Sam is telling this woman of the noble lady of New York who when she read in the daily paper that millions of bushels of Russian wheat had fallen into the hands of the Huns leaped to her feet, her eyes aflame, crying: "The Germans rob the helpless Russians of wheat, but I am robbing our helpless allies when I eat wheat bread. I will eat no more wheat bread until harvest."

He is telling her, too, of that brave California woman who raised the cry "Let's eat milo!" and then exhibited in a store window a coffee mill, a sack of milo maize, a loaf of milo maize bread and a recipe telling how to make it, thus firing the kind of shot that will be heard around the world before this war is over.

UNCLE SAM TO THE AMERICAN FARM WOMAN.

He is advising her that when she thinks bread, she must think potatoes or rye, or corn—anything but wheat.

With regard to the Germans, he is telling her how over in Berlin they are eating camouflaged food—milk made of water, chalk and wood flour; beef cubes in which there is nothing but aromatic herbs and salt; eggs made of bakol and bakaus, which are comestible mysteries, too deep for anybody but a chemist to fathom, and sausages made of minced tendons, skin and rye flour, indigestible and with little semblance of nourishment

He is reminding her if the German women are willing to make such sacrifices to suppress liberty, the women of America should make equal sacrifices in the cause of liberty.

"You, too," he is saying to her, "are a soldier—a soldier of the necessary—and you know that it is your bounden duty to help in every way possible to feed your fighters across the sea—the men who would protect you from the ravishers.

"Prove," he says to her, "that the women of America are willing to fight with those who fight for them.

"Prove that you are a true daughter of your liberty loving grandsires and granddames—the men and women of 1776.

"Prove that you mean what you say when you declare that the Prussian heel shall not be set upon your shore.

"Prove your love of the old flag and your loathing of those who would tear it down and trample it in the mire."

In My California

By Edwin Markham

Author of "The Man With the Hoe."

CALIFORNIA is well-nigh as familiar to me as my garden paths. I spent forty years and within her boundaries. I was a barefoot boy, picking wild berries in the fields near Vacaville, herding sheep on the Suisun plowing the little valleys between the ridges for wheat and barley following the thrashing machine the time of the harvesting. Also, I made my way through college, and spent my after in the service of education and literature. My traditions are all of the Far West.

California is a land of many phases of soil and climate, of fruit and flower. Like of all the Arcadias and Avalons and Ardens of the world, of the waters and the enchanted Think of the hushed benedicite of the skies of Italy, shining beyond Alps and seas; of the quick fertility of Egypt's ancient sands watered by the Nile; of the patient toil of Holland's open plains reclaimed from the sea; of the yield of the vineyards of Germany sunning on hills; of the luxuriance of Israel's chance oases watered by the wells; of the rich pampas of Argentina, bordered by the horizons; of the color and perfume of the rose-gardens of Persia, scented all the winds that blow—think of these places of beauty and abundance and I will show you a duplicate one of them in my California many moods. She produces one sky all that those other produce under their far scattered skies.

Rich Soil—Unique Climate

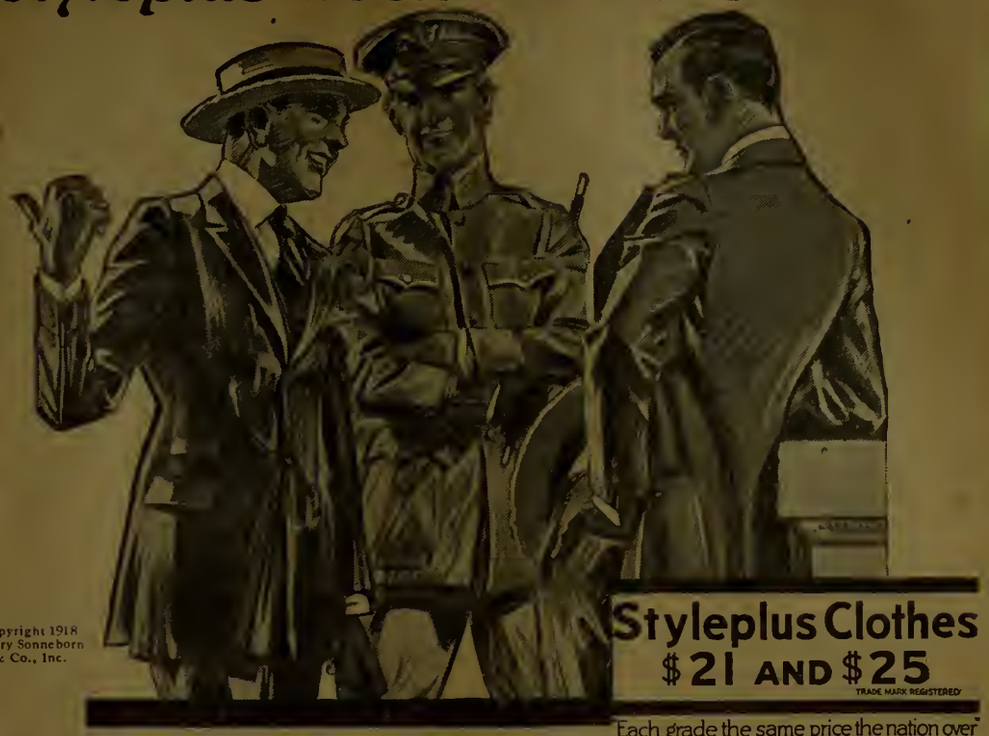
Why can she do this? Because of rich soil and her unique climate. Climate is a glorious possession. There is nowhere else a region where one can spend so many days out of doing so many things in the work or play. Indeed, there are parts where one can live well the whole year out of doors.

On our Californian shores we people of a new ethnic blend, working out their destiny under highly favorable conditions of soil and climate. For California, in the large, is like in many ways of the Mediterranean regions of Europe. She Riviera, with a partial background of desert and with alluvial equaling in richness the delta Nile. The Riviera runs east west from Nice to Spezia. But California is more fortunate in the her three belts—her coast, desert (short one) and her valleys—extend in a free sweep northern to the southern boundaries of the State.

Curious Conditions

when traveling southward on Atlantic slope, you meet with temperatures—the chill of the warmth of Florida. But to sharp variations in California would have to travel from eastward, from the cool of to the heat of Mohave—not from Siskiyou to San In the north there is more there are hotter days in than we find in the great central divided by the Sacramento San Joaquin; but the mean observed for years in reveals an almost Thus we find that the California run strange to say, fruit ripens in and yet California did till ... were

Styleplus Week the nation over



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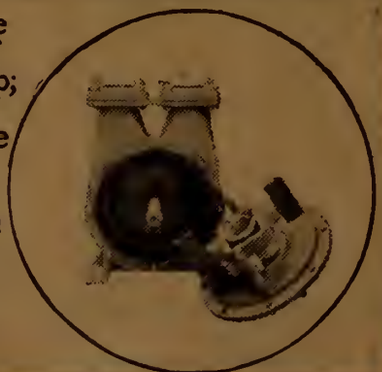

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More Water Less Power.

My Prolific Doe Rabbit

Twenty Children in Six Months and a Half

"RAISE more rabbits and thus combat the high cost of living," is the lay of almost every paper that comes to hand in these Hooverizing times.

Readers have rabbits presented to them from every angle imaginable until one begins to have a suspicion that it is all some cunningly devised and constructed propaganda to promote the interests of the rabbit dealers who seek to profit by the disposition of their stock at fancy prices. Here, however, is what has been accomplished by a novice without previous experience and at little expense, who converted two chicken brooders 3x6 feet and 14 inches high into hutches, and procured a Flemish Giant doe at a nominal cost.

On September 6, 1917, the doe brought forth a litter of twelve, eleven males and one female, the males found their way to the market and the table, and the female was kept for breeding purposes.

We are instructed in rabbit literature that a doe should not be bred until she has attained the age of six or eight months. Not knowing much of their habits, to minimize the labor as much as possible I turned the young doe into a pen with a young New Zealand buck I had purchased, thinking to remove her before she was old enough to breed.

First Litter of Seven

They got along harmoniously together and I was beginning to think of seperating them when one day I went into the pen and found seven youngsters hopping around. The doe had burrowed into the ground and had hidden her family in it sealing up the entrance and packing the earth solidly after coming out from visiting them, which was in the night time as I never discovered her in the burrow. They were quite wild and would dodge into the burrow at the slightest sound and before I succeeded in getting them and the doe into a hutch a vagrant cat walked off with two of them. In a few days after I noticed the doe fighting the young ones and on investigating I found the new ones all rolled up in a nest of fur; one of these escaped through a crack that the wind could scarcely blow through and the aforesaid vagrant took it also. In a short time the doe weaned these and she was again bred.

A Profitable Doe

On March 25th she produced a litter of eleven, making a total of twenty rabbits in six months and fourteen days from the time of her birth. The nine of the first two litters brought $4 at the current market price or nearly 45 cents each, the eleven now in the nest will bring as much or more when they are three months old.

There is still a possibility of three more litters before the doe is a year old. The cost of production is nominal; they were fed greens of various kinds (excepting kale and cabbage) alfalfa and a dry mash consisting of 1 part dried beet pulp, 1 part cocoanut meal or bran, 1 part rolled barley or gyp. corn, varying it a little to keep them from tiring of the ration and keeping salt always before them.

An Interesting Occupation

The early and successive breeding did not seem to hurt the doe as she has not suffered any in comparison with the buck of the same age.

The old doe did not do as well as the young one. She was mated when I got her. I have kept no account of the cash income from her but in seven months she has raised thirty young ones. It is very little trouble or expense and a very interesting occupation to "raise rabbits."—A. S. Dunn, Ontario, Cal.

How Teague Raised Good Crops on Poor Land

SOME farmers say, "If I only had good soil I could raise good crops," but this does not always follow. Good soil, improperly handled, will get no better results than poor soil treated intelligently.

An example of what may be done with very ordinary land is to be found near Corcoran, Kings county, Cal. According to a writer in the Fresno Republican, when R. H. Teague and his family moved upon their eighty, one mile northeast of Corcoran, it didn't look inviting. The land wasn't the best around Corcoran. Teague admits it. Many would have starved to death on it, but Teague sawed wood. He and J. F. Gates began about the same time and under the same circumstances. They are two of the big striking successes of the intensive farmers of the Corcoran section.

This year Teague will raise 500 turkeys merely as a by-product. He raised about 175 fine ones last year, and they brought him around $700.

Teague has eighty acres. About fifteen were really fit for cultivation when he moved on. This year he has thirty-five acres in barley. It looks fine.

He will plant ten acres to long-staple cotton, and quietly prophesies he will make a banner crop. The cotton is to be planted on land two years ago planted to rice. The clay near the top has disappeared. So has the alkali. Teague treated a lot of the land by checking, covering this with about twelve or fifteen inches of old straw, then flooding. He kept the water on all summer and fall. The alkali went down, the clay dissolved and the straw was eaten up and disappeared in the ground as fertilizer.

Last spring Teague sowed fifty acres to alfalfa. It is beautiful now and Teague will this year get at least six good crops. Alfalfa hay is selling around $25. It may come down around $15 for loose. He is planting more alfalfa and about fifteen acres of corn.

"The straw was eaten up by the alkali and went down with it," said Teague, describing his experience. "The alkali kept on but the straw remained near the top to fertilize the top soil. The clay, which will grow nothing without treatment, is fine now.

"Turkeys do wonderfully well when hatched not later than May 15. I lost none last year except those hatched after the hot summer began. These didn't do well. I don't believe there is a better country for poultry on earth. I raise my own grain and feed it back to the chickens and turkeys.

"Thousands of acres adjacent to my eighty are going unfarmed because of the false ideas about the land. They can be treated just as I have treated mine, and made fertile and productive. I don't believe there is a better looking patch of alfalfa than is now to be found anywhere in this section. It shows what may be accomplished by many."

Information for Builders

To measure round timber, add the girth in inches at both large and small ends, divide by 2, which gives the mean girth; then multiply the length in feet by the square of one-fourth of the mean girth and the product will be the contents in cubic feet. This rule gives four-fifths of the true contents, one-fifth being allowed for waste.

Covering Capacity of Shingles

Average size of shingles—4x16 inches—is taken as a basis.

100 square feet, laid 4 inches to the weather, will require 900 shingles; laid 4½ inches, 810; laid 5 inches, 720.

Three and one-half pounds of four-penny nails are required for laying 1000 shingles. Five to 10 per cent should be added for waste and shortage.

Stone and Brick Walls

A perch of stone is 24.75 cubic feet. When built in the wall, 2¾ cubic feet are allowed for the mortar and filling; hence, 22 cubic feet of stone make one perch of wall.

Masons estimate 3 pecks of lime and 4 bushels of sand to a perch of wall.

To find the number of perches of stone in a wall, multiply together the length, height and thickness in feet and divide by 22.

Common bricks are 7¼ to 8 inches long, 4¼ inches wide and 2½ inches thick. Front bricks are ¼ inch longer and wider.

It requires 20 common bricks to lay one cubic foot. In an 8-inch wall 15 common bricks make one foot of wall. One and one-eighth barrels of lime and ⅝ yard of sand will lay 1000 brick.

Do not use more mortar than necessary, as stone is the stronger. Do not lay the stone vertically, but on the natural quarry bed to prevent the water penetrating between the layers. For all damp places use cement mortar or lime and cement mortar.

How to Measure Lumber

Lumber is measured by the board foot. The dimensions of a board foot are 1 foot square and 1 inch thick, or its equivalent. To find the board foot in any piece of lumber, multiply the length in feet by the width in feet by the thickness in inches.

Grazing in National Forests

As a war measure, the National Forest of California carried in 1917 a total of 49,010 head of sheep and goats and 10,970 cattle, horses and swine in excess of the numbers carried during 1916. Feeling, however, that the grazing resources of the National Forests should, during this emergency, be utilized to their fullest, Assistant District Forester C. Rachford, in charge of the grazing work for the Forest Service in California, arranged, last spring, for the services of eight grazing experts. These men were assigned to an examination of the National Forests in order to determine what should be done in the way of water development work and other range improvements, in order to make available every possible acre of National Forest range in California's cattle and sheep.

The results of last season's work of these special men has, according to Mr. Rachford, laid the foundation for much larger contribution towards increased production. Based upon these inspections and reports of the Forest Supervisors, it is estimated that the National Forests of California are capable of supporting a further number of 162,265 sheep and goats and 8878 cattle, horses and swine by reason of all the range improvement work contemplated has been completed.

According to Acting District Forester Hartley, sufficient range improvement work is being done so that there will be an addition over 1917 of [illegible] sheep and goats and [illegible] cattle, horses and swine.

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256 South Los Angeles St., Los Angeles, Calif.

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Stylish—Well-made—Reliable—Low Upkeep

Wonderful value for the money! A wonderful car in every sense of the word! The new Elcar gives you everything you can ask in an automobile; fine appearance, up-to-date conveniences, plenty of room, unusual riding comfort, low upkeep, lasting quality.

It doesn't cost much to run an Elcar. An average of 18 to 24 miles is secured to a gallon of gasoline. 1000 miles are averaged to a gallon of oil. Tires give long mileage due to light weight and good balance.

The 116 inch wheel base gives an abundance of room. The motor is powerful and speedy—responsive and flexible. The built-in quality insures dependable service for years to come. Every part is built 150% strong.

The Elcar is a beautiful car. Has long, graceful, distinctive lines. High class body and paint work. It holds its good looks a long time and will give dependable service for years.

Don't think of choosing a car until you have seen the new models of the Elcar. Ask for nearest dealer's name, if you don't know him.

Brief Mention of Elcar Points

Four-cylinder models have powerful, long-stroke Elcar-Lycoming motor, developing 8½ horsepower at 2,100 r. p. m. Six cylinder models have famous Continental 3¼ x 4½ inch engine, developing 40 horsepower at 2,100 r. p. m. Two unit electrical system. Outside of the power plants, the Elcar sixes and fours are practically the same. Long wheel base, 116 inches; road clearance 10½ inches. Full floating rear axle with spiral bevel driving gears. Timken roller bearings front and rear. Double universal drive; tubular propeller shaft, copper cellular radiator. A wonderfully easy riding semi-elliptic spring suspension. Roomy and comfortable bodies of beautiful design and durable finish; new "Cathedral Pipe" upholstering. Equipment complete, even to motometer on radiator.

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STANDARD OIL COMPANY
(California)

My System in Beekeeping

What Experiment and Experience Have Taught Me.

By C. D. Stuart.

In this new series of articles Mr. Stuart, who is a well-known apiarist of Los Gatos, Cal., will tell of his experience as a beekeeper and will also give the readers of Orchard and Farm some valuable hints on the care of bees and cost of keeping them.

IMMEDIATELY following the appearance of the first beehive on our premises, we were literally bombarded with the question, "What Will It Cost to Establish an Apiary?" which is only another way of asking, "How much capital must I dig up to get into the bee game?"

That, of course, depends upon how one expects to play it. As for ourselves, we played the game according to the amount of capital we were able to "dig up" from day to day out of our regular income. And in order to answer our questioners, we began with the first hive, to keep a record of expenditures.

Naturally the initial outlay in the bee game is for bees. Three purchases aggregating eighteen colonies, and extra young Italian Queens, required $35.72. Once these were in our possession, proper housing claimed our attention, as the old boxes in which the bees arrived could scarcely be called beehives. Like other domesticated livestock, bees thrive best in a sanitary environment, and yield the largest returns when supplied with modern appliances.

Acting on the theory that "the best is the cheapest," little by little we acquired a sufficient number of pine and redwood dovetailed, standard hives, painted and finished in the most approved style, not only to house our eighteen colonies, but to house the swarms that might issue therefrom, up to three times the original number. Also each of the new houses was supplied with a detachable upstairs chamber or super, in which the bees were expected to store the surplus honey gathered. The capital dug up for housing alone was $124.26.

But the making of beehives was not accomplished with bare hands. Before we were aware of it, we had invested $30.58 in hammers, saws, planes and other tools.

Additional equipment for getting honey out of the hives and ready for market, was added from time to time, such as a honey extractor, queen excluders, a solar wax extractor, bee veils, smokers, gloves, etc., to the amount of $60.68. Also bee literature—books and magazines—to the amount of $16.85.

Artificial Swarming Costs

With all our preparation, however, the extra hives did not fill with swarms as rapidly as we had anticipated. After consulting our bee library, we decided to hasten matters by artificial swarming.

For that purpose we invested in a breeding queen and other queen-rearing paraphernalia to the extent of $19.01, making a total cash outlay for equipment of $297.10.

But the outlay did not end with the cost of equipment. Until a business venture has reached a paying basis, provision must also be made for expenses, or operating costs, which in our case were "dug up" from the same source as were the equipment costs, and amounting to $116.30. Operating costs will be taken up in detail in the next article.

Just as cash capital represents the amount we could spare from our daily income, for apiary equipment, labor capital represents the number of hours we could spare from our daily occupations, for the establishing of an apiary.

A man usually knows how much he can spare from his cash earnings, and he should with equal certainty be able to compute the time he can spare from his hours of labor.

When the average man goes into a business enterprise, he rarely considers capital as other than cash to be drawn from a bank, as needed for investment purposes, especially if he expects to perform the labor himself.

As a consequence, he often spends many years for "board and clothes" when the same period of time spent at a "regular job" would have yielded a surplus or profit at the end of each year.

His theory is similar to that of a beeman who had built up a thriving business in selling colonies of bees. He figured that when he purchased a modern ten-frame hive complete with frames and wax foundation for $[illegible] and sold it, filled with bees, for $[illegible] he was making a profit of $3.57. He had built the hives himself, and the bees had done the rest. Yet he had discontinued that branch of his business. "No Money in Bees," and he "gave" all his time to the business too. And therein lay his trouble. He GAVE his time. If he had sold his time even at 30 cents an hour, the going wage for unskilled labor, he would have discovered earlier in the game that he had been disposing of his colonies at a loss.

What Labor Costs

Our labor capital of $220.80 based on that rate, represents 736 hours, or the equivalent of 90 eight hour days, or three months snatched from man's hours for rest and recreation in one year. Whether or not one can give so much time to a new enterprise without going broke—either physically or financially, is a question carefully to consider. For it means either the average saving of two and one-half hours from one's daily labor for one year, or, in lieu of time, an average saving from income of [illegible] cents a day additional for one year to pay another man to perform the work.

A city-bred man may decide that his work is worth more than that of an unskilled laborer, and that it would be more profitable in the long run to hire labor, rather than consume his own time at it. In that event, he loses valuable experience from personal contact with an enterprise. But if he does the work himself, he must remember that he is a beeman earning a beeman's wage, and no more; and he must compute his labor capital on that basis, even though he might command $20 a day in a profession to which he has devoted many years.

The result of this reasoning has reduced our labor capital to a comparatively small sum; yet we think a fair amount for those having no real knowledge of bees than beginners usually possess.

How to Figure

"What will it cost?" is heard with increasing frequency since the federal income tax became operative. In order to arrive at the true cost of establishing an apiary, labor capital must be distributed to equipment cost, and to expense or operating cost, in the same manner as cash capital is distributed. In this way only can the income an apiary should pay an income tax be correctly determined, since equipment is subject to an annual depreciation or wear and tear—and unless the labor that goes into manufacture is added to the equipment cost, a beekeeper will not get the benefit of the labor deduction to which he is entitled.

For example, nearly one-third of our future labor capital [illegible] invested in the making and [illegible]

Troubles of Tomato Growers

Pests Puzzle Plant Pathologists

THE rest of the country had to [illegible] it to California last year [illegible] growing the largest crop of [illegible] of any State in the Union. [illegible] Maryland produced 24,867 tons [illegible] New Jersey 155,574 tons, Califor[illegible] yield was more than that of those [illegible] States put together, or 382,282 [illegible] This was 29 per cent of the to[illegible] crop of the nation, which totaled [illegible] 341 tons.

[illegible] year the crop will be as large [illegible] California, if not larger, and it is [illegible] for tomatoes, though not gen[illegible] so considered, are a valuable [illegible] crop.

In the April number of Orchard and Farm, Mr. D. J. Whitney, formerly [illegible] of this paper, told of the trou[illegible] of the Tulare tomato growers, [illegible] it may be that these will be re[illegible] this season; but, even so, Cali[illegible] will be to the front again with [illegible] world-beating record.

How Tomatoes Are Planted

The field planting of tomatoes in California is generally done by hand, [illegible] machines are likely to be employed in future, as one or two very good ones are now being perfected, particularly that of James C. Crawford of Burbank, Cal., described in the December issue of Orchard and Farm.

Here is a description of tomato planting in Solano County:

Three men were planting tomatoes early in May, as fast as the horses could walk. A middle-break plow is fastened between two wheels at the end of a wagon tongue. Following this is a knife between two four-foot wheels, which digs deep in the ground and is flared into two blades behind, to leave an opening for the plants. A barrel above the middle-break supplies water through a hose to this opening. The water runs continually.

"One man drives, two men ride seats close to the ground so they can take the tomato plants from the platforms in front of them and place them in the freshly moistened opening as the machine travels. Two curved knives follow the cutter knife to rake the dirt tight up to the plant.

"The tomatoes were being set about five feet apart each way and about six inches deep. They promptly wilted in the noonday sun, but recovered the first night."

Diseases of the Plant

The tomato plant has a number of diseases of which the plant pathologists of the University have made close study for several years and of which Circular 147 by Professor Rogers gives the latest account. The first to be encountered—that is, in the seed-bed—is "damping off," which has been discussed in Chapter XI. Next is the winter blight, a blackening of the leaves, which is prevented by the Bordeaux mixture applied as soon as its first signs appear.

Then there is blossom end rot, which seems to be controlled by culture and irrigation, which gives the plant regular and adequate soil-moisture. Leaf spot shows itself in angular spots with pale centers and colored edges and is checked by Bordeaux mixture.

Summer blight kills plants usually in the spring and the symptoms are curling and yellowing of the leaves and collapse of the whole plant quickly. No cause has been determined. Fortunately, plants set after June for the main crop are less seriously affected than earlier in the season. According to Professor Wickson, no treatment seems to have any effect.

Bee-Keeping Cost

(Continued from Previous Page)

[illegible] and supers, and the making and [illegible] of frames. That amount [illegible] to the cash capital, $124.26, [illegible] a total investment in hive equipment alone of $188.91. If such equipment wears out in ten years, the annual deduction for depreciation would be one-tenth of that amount, or $18.89. If we had neglected to add the labor capital to hive equipment, the deduction for wear and tear would have been only $12.43, and we would have been subject to an income tax on the excess of $6.46. This reasoning applies also to bees and other apiary equipment.

Thought Is Required

Of course it requires some thought to keep tab on the disposition of each hour in a day's work. Many busy farmers will say that it can't be done. We are not advocating an elaborate factory checking system, including a time clock, in a one-man or even a [illegible]-man apiary, but if a daily record can be kept of hive-scale and [illegible]meter readings, as many skilled [illegible] do, it should require but [illegible] additional trouble to record [illegible] the number of hours given to [illegible] department of his apiary work.

However, it is not a question of [illegible], but one of accuracy; and [illegible] is recognized as a part of [illegible] investment, there can be no [illegible] upon which to deter[illegible] the cost of getting into the bee [illegible]

[illegible] of last year's ex[illegible] in apiary was [illegible] and [illegible] 45 including [illegible] This cost [illegible] than the [illegible] own [illegible]

Save the Coal

EVER since man has employed metal in his weapons of war, the forge has played an important part in history, but never before were there such gigantic forge fires as those of today in Pittsburg, Bethlehem and other American manufacturing cities. There the great furnace fires are kept flaming and roaring all day and night that the guns and shells so necessary to the safety and success of our men in France may be supplied. These great fires that consume millions and millions of tons of coal are the liberty fires of today. It is the patriotic duty of every American man and woman to do all in his or her power to conserve the available coal supply for these fires. Every bucket of coal saved at the domestic fireside is a bucket of coal heaped on the fires of liberty.

The United States fuel administration has urged upon the American people the necessity for conserving coal and has asked that its use be entirely dispensed with where possible. This request if complied with will strengthen our country in two vitally important ways: First, it will make more certain the supply of coal needed to manufacture munitions; second, it will relieve the railroads of the strain of moving coal for domestic use when there are other and more important things for them to apply their equipment to for the successful prosecution of the war.

Here in the western part of the country the use of coal is particularly serious, for it has to be brought to us over many hundreds of miles from Utah and Wyoming. Every effort should be made to curtail the use of coal. We have available supplies of wood and oil and these should be used wherever possible.

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Imperial Valley Cotton

Best Varieties and How to Grow Them

IMPERIAL VALLEY cotton commands a premium over cotton grown in the South on account of the greater whiteness of fiber.

A big problem facing the cotton raisers of the valley is how to select and establish, to the exclusion of others, the variety that will bring the greatest net reurns. It is highly important that one type be selected, as the growing of several varieties in one locality necessarily tends toward hybridization, the results of which are hard to overcome.

This is especially true in this section, where the cotton plant is a perennial, the volunteer plants always being a source of crossing. As would be expected in starting a new industry, a large number of varieties of cotton have been tried. Out of the number three types remain.

Long Staple Durango

A variety of cotton known as Durango is the only long staple variety grown. It is recommended as the best cotton to plant at the present time. The staple averages an inch and three-sixteenths to an inch and a quarter, and commands a premium of from 2 cents to 6 cents per pound over short staple. The ginning percentage averages 28 to 31 per cent.

Durango yields as well as short cotton under similar circumstances and has a more upright growth and less foliage than Triumph, which allows the lower bolls a better chance to open and mature and makes picking somewhat easier.

The irrigation of Durango is very important, for, if not done well, there is a decided tendency to drop the squares on the least provocation.

A number of varieties of long staple cotton have been tried out, but in most cases have not proved a success. Improved long staple upland cotton from the South has been grown on a commercial scale, but has proved a failure on account of the small size of the bolls and lack of uniformity in the staple.

Successes and Failures

Sea Island cotton has never been a successful crop here, although the plants do fairly well.

Egyptian cotton has proved to be well suited to local conditions and promises to become a profitable crop. The yields have been satisfactory, averaging approximately a bale to the acre when properly handled, while in individual cases a bale and a half to the acre has been grown. The staple averages 1 7-16 inches to 1⅝ inches and is very fine and strong. The first grade cotton sells for from 6 to 10 cents more per pound than the short staple.

The ginning percentage of this cotton is rather low, averaging about 27 per cent. This, together with the cost of picking, which averages 2 cents per pound as against ¾ to 1¼ cents for short staple, has discouraged the growing of this type of cotton for the present. The comparatively high cost of picking is due to the fact that the bolls are rather small, and also to the fact that the cotton must be picked often and clean in order to get top prices for first-grade product. There is little doubt, however, but that this type of cotton will come into favor as the large tracts of land are divided up and it becomes necessary to make each acre count for the most. When this time comes this section will become noted for the production of this excellent cotton.

Short Staple.—Mebane Triumph is the only short staple cotton grown at present. This variety gives good results, as the bolls are fairly large, quite storm resistant, and the ginning percentage is high.

Cotton in the Imperial Valley is planted from the first of March to the first of June, April being the best month. The land is plowed and irrigated, then furrowed 3½ feet apart and irrigated again. The land is then harrowed as soon as the soil is dry enough and the seed is drilled in on the ridge and when 6 inches to 10 inches high is thinned to 18 inches in the row. Egyptian cotton will grow better and the cotton will be easier to pick if planted 2 inches apart and thinned to 6 inches, as this tends to reduce the otherwise excessive vegetative growth. It is a common practice to irrigate again soon after planting to insure a good stand and give the young plants a good start.

Thorough cultivation should follow each irrigation. The land should be kept in as good a condition as possible, as irrigation without cultivation does not give the most satisfactory results.

Careful Irrigation Necessary

Cotton land should be thoroughly irrigated before planting. A comparatively light irrigation often follows planting to insure the germination of the seed and to give the young plants a good start. Water should then be withheld and the land well cultivated until after chopping or until the plants show a decided need.

Irrigation should follow frequently enough to prevent the plant from suffering for water, but water should not be applied unless necessary. Too much water induces a rank vegetative growth at the expense of fruiting. This is especially true with a variety like Triumph, which has a naturally dense foliage that shades the lower parts of the plant when the first bolls are formed.

Any sudden change from a dry to a wet soil will cause a serious loss of squares, especialy in the Durango cotton. Thorough cultivation will do much toward equalizing the moisture conditions, provided the first irrigations are thorough.—Frank Packard

My Hatching Experiments

I DO not believe eggs should be set the same day they are laid and generally the second or third day is the best to start incubation.

From experiments conducted with bantam eggs, it would seem that the eggs placed under the hen the second and third days after being gathered hatch out the largest percentage of strong chicks.

Eggs one week old showed a slight decrease in the percentage hatched and after two weeks we have been unable to get more than a fifty per cent hatch.

At three weeks the hatch was something like thirty per cent while those kept four weeks produced only about one chicken to each setting of fifteen eggs.

In contrast to this record some Plymouth Rock eggs that had been shipped seventy-five miles by parcel post showed a fifty per cent hatch after being kept three weeks.

Eggs for hatching should be stored in a cool dry room, where the temperature can be kept around fifty degrees. After the third day they should be turned daily. Avoid damp cellars or cupboards. Do not wash eggs much. Better incubate them in a dirty state, but the best way is to provide clean nests for the hens. If it is possible to do so, it is better to set the eggs every few days rather than keep them until a large number are obtained.—C. H. C.

Potato Problem Solved

(Continued From Page 5)

[illegible] pressed potatoes is about as follows:

For washing and elevating the potatoes	2 h. p.
For grinding	10 h. p.
For pressing	2 h. p.
For drying	12 h. p.
Total	26 h. p.

[illegible]der horsepower for drying 35.

The labor required for one shift of [illegible] hours is as follows: One fireman, [illegible] men on hydraulic press, one man [illegible] feed potatoes, one man to feed [illegible]er, one general utility man. Total, [illegible] men.

The washer, grinder and press can [illegible]dle potatoes easily at the rate of [illegible] tons per hour. The drier, however, has only half of this capacity, so that when operating at the full capacity of the first three machines, the excess [illegible]f pressed potatoes produced must be [illegible]ed in a bin and dried later, operating the drier for an additional eight [illegible]ours, when the services of one or two men will be required for firing, and feeding the material to the drier.

What It Costs

A better method where sufficient potato culls are available to justify the added expense would be to use a drier of twice the capacity. This change would give the plant a possible capacity, operating 24 hours per day, of 72 tons of potatoes.

The machinery used was purchased before or immediately after the beginning of the war. It could not now be replaced at a cost less than 50 per cent higher. The cost of the principal machines was as follows:

Potato washing machine	$ 523.60
Potato elevator	261.80
Grinder	330.00
Hydraulic press complete, with double plunger pump	526.50
Drier feed	369.00
Drier	1938.00
Total	$3948.90

Other costs in addition to this are the cost of the power and steam plant, belting, shafting and pulleys, necessary valves, tools, steam traps and piping.

The cost of converting potatoes into dried pressed potato at the rate of 24 tons per day, running the drier 16 hours and the rest of the machinery 8 hours, is difficult to state. If the plant could be run continuously for a 100-day period the cost should not exceed ½ cent per pound of finished product.

The dried pressed potato, when properly balanced with concentrates, is an excellent feed. It has been thoroughly tested as feed for dairy animals and swine, with favorable results.

Produce Milk With Low Count

MILK with a low bacterial count can be produced in practically any cow barn. Any dairy farmer with a healthy herd can produce such milk with an investment of only $10 or $20 and a little extra care.

The United States Department of Agriculture in an experiment produced [illegible] bacterial count milk in a poor dairy barn.

The only changes made were: Simple steam sterilizer for utensils. Clean cows, especially clean udders. Small-[illegible] milking pails. Proper manure re[illegible] and good bedding.

The bacterial count fell from as [illegible] 1,200,000 to an average of [illegible]

[illegible] bacterial count is the beginning of good milk, but milk must also be [illegible] from other contamin[illegible] in a dairy barn. There is [illegible] for the production of milk from dirty cattle or in a dirty stable. In addition milk must be [illegible] to prevent the multiplication of bacteria.

Salt River Cotton

SALT RIVER VALLEY, Arizona, is looming up as an important cotton-raising district. The last two seasons have seen the greatest development in cotton in this valley, and the 1918 season will be by far the greatest year in the history of the industry here. The acreage was increased last year from 7,000 to 34,000 acres, and this year the acreage will be from 75,000 to 100,000 in the valley alone, according to the various estimates made.

Outside the Salt River Valley it is estimated there will be 30,000 acres planted. The other cotton-growing districts of Arizona are situated at Florence, Casa Grande, Parker and Yuma. Much first-class seed already has been purchased for these districts. Planting starts about the middle of March.

The season just closing was a most successful one. Cotton, such as is raised in the Salt River Valley, is quoted in the East around 75 cents. The valley produced about 12,000 bales in 1917 and much of it is on hand at the yards, awaiting shipment to the eastern mills.

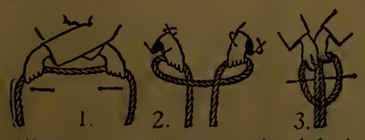
Long staple cotton is scarce in the United States. Usually the mills have depended largely upon cotton from Egypt. This year, however, finds no Egyptian cotton at the eastern mills. Furthermore, there is barely a chance of any cotton coming to America from Egypt for a long time, owing to conditions brought about by the war.

This leaves the Sea Island district of the South Atlantic Coast, the Imperial Valley of California and Arizona to supply the eastern mills with lint. The big growers realize the situation is in favor of the Arizona and California cotton people. They say that the present market condition forecasts better prices. They realize that now is the time to expand.

Aside from the lint from the cotton boll which is worth millions of dollars this season, there is the seed from which is made a high-class oil for cooking and other purposes. This brings another large financial return. Then there is developing in the valley another and much needed industry, that is stock feed from the cotton seed. This feed is made from the seed after the oil has been extracted.

How to Make a Clove Hitch

OF all the hitches used in common rope work, the clove hitch is the most used of any and is the simplest. It is used in the fastening of guy ropes or other temporary stay ropes, and is the most convenient and the most secure method for such purposes. The clove hitch may be formed, says Successful Farming, either in the end or the middle of the rope without access to the end, and it will be secure with either end of the rope used as the standing part. The farmer's method of making a clove hitch is the most practicable and one of the most common methods used.



First cross the arms, the left in front of the right, grasping rope as indicated in figure 1.

Keep the rope straight without twisting. Bring the ends to the position in figure 2.

Complete the hitch by turning both hands to the right, as indicated by the arrows in figure 2, the result being shown in figure 3.

Luther Burbank, though well advanced in years, is quite an athlete. He can hustle big bags of corn and other seeds about like a man of thirty.

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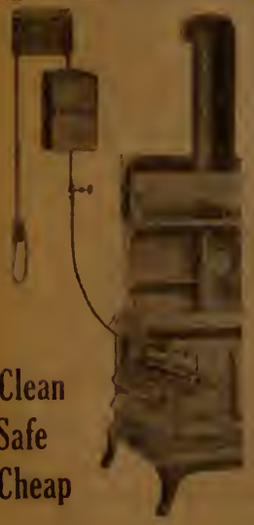

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Revolt of a Farm Woman

By Emma Garibaldi.

WHEN John and I were married we probably knew each other as well as the usual run of couples. It is said, however, that you know a person until you have to live with him, which is certainly true. We owned a small but good stock and grain ranch, and while he attended to his part of the work, I looked after the poultry and a small dairy.

Aside from the ranch we had little to draw upon, excepting robust health, and I was not long in finding out that John was both extravagant and wasteful. Every new device or article of machinery that he heard of he wanted at once and, times without number, money that was sorely needed for other things went for tools that he did not need and could not use after they were purchased.

At the end of six years the toolhouse was piled to the roof with a miscellaneous collection of implements that would have delighted the heart of a city junk dealer. Besides these, many perfectly good and useful tools were scattered everywhere about the ranch to be ruined by the sun and rain, and many articles that could have been repaired at slight cost were cast aside as worthless.

Long ago the household expenses had been turned over to me and were always paid from the proceeds of my butter and eggs. At the beginning, whenever John indulged in some unusual extravagance I would cut down my personal or household expenses to help pay the bill, and that was a foolish move on my part, for the more I saved the more John spent.

I trimmed and retrimmed old hats, I turned and dyed and mended, I scrubbed bare floors because I thought I could not afford linoleum. I used the time when I should have been resting to make rag rugs, and even drew rags into my leaky kettles and saucepans. I daily practiced hundreds of little economies while John went heedlessly on his way spending all he could get for things he did not need.

He was a happy, easy-going fellow and did not mean to be selfish. I was easy-going, too, but there was a limit to my patience; and when, one morning, John announced his intention of purchasing a very expensive and utterly impractical machine, which I knew would mean months of most rigid economy for me, I balked.

I said: "John Martin, I have lived here and worked like a horse for six years, I have scrimped and saved and patched, I have gone without hundreds of things that were actual necessities to other women just to help you buy tools you could not afford and never used, and now I am going to quit."

John was staring at me with open mouth while a slow growing horror spread over his features. I went on: "I have turned my clothes inside down and inside out, I have dyed and darned and patched, I have worn one hat four years, I wring my clothes by hand, I work my butter with a paddle, I skim my milk as my grandmother used to, while the farm is covered with useless and expensive machinery."

"What in thunder do you do it for?" John burst forth; "I never asked you to, I thought you had sense enough to get things for yourself when you needed them."

To that I had no answer, for he certainly never had asked me to do such things, and I evidently had not possessed sense enough to look out for myself.

"All right," I said, grimly. "I will go to town today and get a load—understand? a load, of things I have wanted for six years."

John was not without a sense of humor. "Go to it," he grinned. "I guess my credit is good."

And go I did. I bought a suit, shoes, hat and gloves, two pretty rugs, and heaps and heaps of lovely blue and white enameled ware, and topped it off with an aluminum percolator. I bought a wringer and selected linoleum to be purchased on my next trip.

There was a better understanding between John and me after that. When he wanted anything and could afford to pay for it without straining me, he got it; but never again did I deny myself clothing or necessary articles. Together, we agreed that I worked as hard as he did and was therefore equally entitled to the good things of life, and that it was not fair for me to pay all the household expenses with the money I earned. Secretly, I think John was prouder of me for the stand I took than he had ever been of all my scrimping.—Farm Journal.

How Birds Help the Farmer

THE value of birds to the farmer is based principally on their feeding habits. Their greatest help is through their activity in eating harmful insects, their eggs and larvae. Without this constant aid, we would be powerless to protect our trees and crops from the ravages of caterpillars, beetles, borers, and such creatures. We have many terrible examples of what happens when a species overcomes its natural enemies that, under normal conditions, hold it in check. The devastation caused by the rapid increase of the gipsy and brown tail moths throughout New England, the cotton-boll weevil in the South, and the injurious fruit scales in California, all show the effects of such insect invasions. These ravenous creatures cause an annual loss to our forestry and timber interests of at least $100,000,000, as is shown by figures issued by the United States Department of Agriculture.

Much valuable data have been compiled by the United States Biological Survey, at Washington, and by various State departments, notably in Massachusetts, New Hampshire and Pennsylvania. In these papers, it will be found stated, to quote Chapman, "that the stomach of a single cedar waxwing contained 100 canker worms, that one cuckoo had eaten 250 caterpillars, that 454 plant lice were found in the stomach of one chickadee, that a nighthawk had made a meal' on 600 grasshoppers, that a flicker had devoured 1000 chinch bugs, that a scarlet tanager was seen to eat 630 gipsy moth caterpillars in eighteen minutes, or at the rate of 2100 an hour; while a Maryland yellow-throat ate 3500 plant lice in forty minutes, at the rate of 5270 an hour!"

The food administration is urging the public to eat beans. Their greater use will help to decrease the consumption of meat. And in using the greater use of beans, the food administration is asking that preference be given to the colored varieties.

Orange Crop Outlook Good

Naval and Valencia Prices Will Be High

[illegible] orange harvest is about [illegible] end of the string, and [illegible] crop has been the lightest in [illegible] years, but it appears that the [illegible] are going to experience two [illegible] in navel orange growing, for [illegible] that are now bursting into [illegible] promise of an overwhelm[illegible] crop next season.

[illegible] districts report that the navel [illegible] a week to ten days late. This [illegible] to the late arrival of rains [illegible] the coolness of the winter [illegible] but it will not have any [illegible] effect upon the development [illegible] ming crop, in all probability. [illegible] weather will urge along the [illegible] of young fruit.

[illegible] navel marketing season spins [illegible] an end, the California Fruit [illegible] Exchange expresses the [illegible] that growers in the Tulare [illegible] will perhaps receive almost as [illegible] their 1917 crop as they were [illegible] the 1916 harvest. This is pos[illegible] because they have sold a crop [illegible] 50 per cent of normal at ab[illegible] high prices. The same con[illegible] to price prevails in the south[illegible] ties, but the returns will not [illegible] well, because the navel har[illegible] of the Tehachapi only aver[illegible] per cent of normal.

Orchardists Not Downcast

[illegible] of groves of seedlings and [illegible] who ordinarily count them[illegible] somewhat out of luck in an [illegible] year because their varieties [illegible] the most popular when fruit is [illegible], are not downcast this year, [illegible] they have fruit in abundance, [illegible] having clung tenacious[illegible] twigs while other varieties [illegible] during the torrid spell.

[illegible] seedling groves in South[illegible] California which have yielded [illegible] year worth from $1000 to [illegible] acre. It is a matter of rec[illegible] several groves west of Po[illegible] produced $20,000 worth of [illegible] on ten acres of ground. This [illegible] course, the exception rather than [illegible] however.

[illegible] speaking, the seedlings [illegible] rather small. Some of them [illegible] into sizes of 350 to the box [illegible] a small proportion of the [illegible] graded as large as 250 to the [illegible] ordinarily would seriously [illegible] with marketing, but condi[illegible] been freaky this season, be[illegible] the limited supply of fruit, [illegible] small fruit has sold quite [illegible]

[illegible] viest seedling acreage is [illegible] that which lies between the [illegible] Hotel in Pasadena and [illegible], although there are a good [illegible] plantings in the Riverside dis[illegible] a few near Pomona. A tri[illegible] east and southeast of [illegible] accommodates a great num[illegible] bearing trees.

The Off-Bloom Crop

[illegible] unusual condition which [illegible] year because of the hot [illegible] June is the off-bloom [illegible] which is due to ripen in [illegible] fruit will perhaps be [illegible] soft, but it will come [illegible] there will not be much [illegible] the market and it ought [illegible] prices. Off-bloom navels [illegible] summer are somewhat [illegible] they result only from [illegible] of the elements.

[illegible] advices from Whittier, [illegible] various other lemon dis[illegible] trees are heavily [illegible] and are promising [illegible] tense to [illegible] of [illegible] and winter. The out[illegible] has not been more [illegible] for many a year, and [illegible] believing that the [illegible] year will be [illegible]

[illegible] through the [illegible] Valencia crop is [illegible]

County to 40 per cent at Glendora, 35 at San Dimas, 30 at Claremont and a diminishing percentage the farther east you go. This reduction in quantity as one goes farther from the coast to the inland is because the hot weather affected the trees of the inland country more seriously than those nearer the coast last summer.

Valencia Prices Will Be High

Prices for Valencias will unquestionably be high. They may be abnormally high, owing to the light harvest. In that event the difference in the season's total may bring the net return to the growers up near to the figures totaled in former years. There is some increase in quantity because of new acreage coming into bearing, and this will make the final figures foot up higher at the end of the marketing season. The Valencias appear to be of splendid texture and flavor. They reach the market at a time when there is little if any competition.

Having enjoyed a complete rest because they bore a light crop last year, the citrus trees of Southern and Central California are in magnificent condition at present. They have thrown out a great deal of new growth, much of which will bear fruit this year.

No one will deny that the citrus trees were perhaps never so free from scale pests as they are at this moment. Hot weather is disastrous to the various forms of scale, and that week of high temperature in June, 1917, laid low millions of scale colonies which infested the trees. Those that were not cooked by the sun were suffocated by hydrocyanic acid gas.

Last year was a record-breaker for fumigating, despite the high cost of cyanide and manual labor. Realizing that the small amount of fruit on the trees made it advantageous to fumigate, the growers spared neither time nor money, but went after the scale and kept after it until the trees were thoroughly cleaned.

F. G. Wyman of Claremont, who fumigated between 5000 and 6000 acres of bearing trees last fall and winter, says he never saw the citrus orchards in such a healthy condition as they reflect right now.—J. M. Sherwood, Pomona, Cal.

The Goblin Laugh

By Edwin Markham

WHEN I behold how men and women grind
And grovel for place of pomp or power,
To shine and circle through a crumbling hour,
Forgetting the large mansions of the mind
That are the rest and shelter of mankind;
And when I see them come with wearied brains,
Pallid and powerless to enjoy their gains,
I seem to hear a goblin laugh unwind.
And then a memory sends upon its billow
Thoughts of a singer wise enough to play,
Who took life as a lightsome holiday.
Oft have I seen him make his arm a pillow,
Drink from his hand, and with his pipe of willow
Blow a wild music down a woodland way.

Manure is unquestionably the most satisfactory corn fertilizer. No farmer should consider using commercial plant foods this spring until he has cleaned out every barn, feed lot and hog pen on the place. After this has been done and still there is medium to thin land to be planted to corn, some commercial fertilizer, especially the highly phosphatic ones, will doubtless be profitable

Superior Player Pianos

We handle the products of the famous Aeolian Co., the largest Piano manufacturers in the world, makers of the famous Pianola, the Stroud, Steck, Wheelock and Weber Pianos and the wonderful Aeolian Pipe Organ.

We offer as our lowest priced player the Aeolian Player Piano, which contains most of the features of the Pianola—it is a beautiful instrument, sweet toned, plays all the 88 note music. It will give much pleasure and render long and efficient service. Price $480.

Then we offer the Pianola line. The Pianola is distinguished from all other player instruments because of its many exclusive and wonderful features—the Metrostyle, the Themodist, the Automatic Sustaining Pedal, etc., etc. The Pianola line begins with the Aeolian Pianola at $585; then the prices range upward according to the Piano model—whether in the Stroud, Steck, Weber or Steinway.

The climax of the Player line is the Duo-Art—which is first a "straight" piano; secondly a player piano playing any roll, the motor being operated electrically, enabling the player to devote his entire attention to the expression devices; and thirdly—with the special Duo-Art rolls, reproducing the actual playing of the world's great artists—Bauer, Gabrilovitch, Grainger, Saint-Saens and scores of others. (We cordially invite you to hear this marvelous instrument).

We will arrange convenient payment terms on any Player instrument.

We invite you to call at any of our stores—or write us asking for illustrated catalogues and prices.

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18 in. long,	7 in. wide		15.00
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California Wonder Corn

Or Prolific White Dent, a wonderful new corn. First publicly shown at San Francisco Land Show, October, 1917, where it took first prize and blue ribbon over all competitors. Produces 5 to 12 ears per stalk, 350 bushels of ear corn per acre or 50 to 70 tons of very rich silage per acre. A wonderful money-maker. Quick returns at little cost. See article on Page 5 of March Orchard and Farm. A few choice selected seed for sale at $1.00 per pound in five pound lots or over. Order now while the stock is complete.

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This Cow Breaks All Records

Napa Holstein Earns $200 a Month

IN THE December number of Orchard and Farm was the description of a remarkable milking system adopted by the State Hospital Dairy at Napa, Cal. V. L. Heath, manager of the dairy, had discovered that by milking his cows three times a day he raised their milk output more than 40 per cent.

Mr. Heath's plan was simply to milk his cows, 100 in number, at midnight in addition to the regular daily milkings at 8 in the morning and 4 in the evening.

One of the Holsteins at the hospital dairy has recently made a wonderful record, 3794.6 pounds of milk, or 1897 quarts in thirty days. This is the world's record for milk production for that period of time.

The cow, Raphaella Johanna Aiggie, was purchased in Washington last year. Two months ago it was announced that she had made the second best record for milk in a week.

The highest previous figure for 30 days is given by the owner as 3767.3 pounds, so the Napa cow has a good margin.

Her production for the month at current prices would total $208 in value.

The Three-Time System

The three-time system was first tried out on the prize cattle at the Napa State Hospital dairy, Holstein-Fresian breed, and was a success. Then Manager Heath was inspired with the idea that a similar test with common grade cows might prove productive of results of interest to all the farmers and dairymen of the country.

The first test was made over two years ago with twenty-two cows, some of which were fresh, others having been milking for a period of eight to twelve weeks. At the beginning of the test the biggest producer was giving 42 pounds of milk daily. The average of the group was 35 pounds. At the end of a two months' test the record producer had increased to 67 pounds daily, the average being raised to 62 pounds daily for the entire 22 cows. Based on this and many subsequent tests with groups of his grade cows, Heath makes his promise to the American farmers and dairymen that the adoption of his "three-time system" will net them a uniform increase in yield of more than 40 per cent.

The Plan Is Feasible

Heath further declares that the third milking is quite feasible. The increase in food, which is about one-third more grain and mash, but no more hay, and the extra labor in milking adds but slightly to the cost of milk production.

"Be careful not to expect too much in a short time," warns Manager Heath. "Don't despair if your results are not immediate. Be patient and persevering.

"Also take warning that not all cows are amenable to this development system. Some cows cannot be stimulated to increased milk production even by the three-time system. Don't try overgenerous feeding. That won't do the work. You must have your foundation before you can build your house. If your supposed 'milk' cow is in reality a 'beef cow,' then stop right there. She belongs to the butcher, not to your milk herd.

"Cows to be developed must give at least 40 pounds a day at the beginning. They are the ones to be worked with. You can't expect to get millions out of a gold claim where there is only 'color' in the pan. But if you have a cow that gives around that 40 pounds you can cry 'Eureka!'"

Selecting the Dairy Bull

THE dairyman who succeeds in building up a herd of high producers usually gives a good deal of attention to the selection of the sire. It is really something of an art to select the good bull and at this time, in particular, when high production is so essential to profits, more attention than ever should be given to the bull. The only profitable way to renew the herd is to raise heifers and this should not be done in a hit or miss way.

If one has a herd of common cows, producing something like two hundred pounds of butterfat per year, the problem of selecting a sire is quite simple. Almost any pure bred animal of the dairy breeds will improve such a herd.

On the other hand when a herd has been developed to the point where each cow is giving 10,000 pounds of milk per year or four hundred pounds of butterfat, it is quite a different problem. In that case it is necessary to have a good bull at the head of the herd if heifers are to be produced to take the place of their mothers.

Where high production is demanded, the methods of feeding make it necessary to renew the herd frequently, therefore a good sire is of the utmost importance.

The cheapest way to get a bull is by buying a calf from a good herd. This in many cases proves satisfactory but not always proves the case.

If the herd is of considerable size, it is a good plan to keep one bull of known ability to sire calves of quality and at the same time have another one coming along to take his place. It is impossible to judge what a young bull can do until some of his daughters have begun to produce. The young sire should be used moderately while the older one is suitable for service.

Prayer of a Contented Cow

I AM a milk machine. I ask only for proper food and care and I will produce rich, pure, sweet milk.

The more care given me, the more and better milk I can and will produce. I want to do it because it is my life's work.

Please remember, dear master, I must work 24 hours each day that I can produce milk, both night and morning. In order to produce the maximum efficiency, I must work under favorable conditions.

I must have good food from rich pastures.

I must have pure water and I must have plenty of fresh air. I must not be compelled to stand out in the rain or in the boiling hot sun.

Do not tie my head so that I cannot protect myself from the pesky flies, and so I cannot lie down and rest with ease and comfort. If I must be tied in a stall, wash and brush me regularly, so that foreign dust and dirt will not get into my milk. Please look after my hoofs and keep them healthy.

Please do not swear at me and do not strike me.

I like to be petted often.

Kind words also will help make me happy and contented.

Save 25% to 33⅓%

Will be shipped complete—cut-to-fit and ready to erect— for **$975**

This price includes Lumber, Ins[illegible]ish, Sash and Doors, Screens, [illegible] Paint, Hardware, Plumbing, Ele[illegible]tures and Wiring, Built-In Bed, [illegible] Cement and Plaster. No waste [illegible] to buy [illegible]ause all the materi[illegible] is included in the price.

No need to pay high prices on building material. Buy direct from headquarters.

Send for Plan [illegible]—containing [illegible] and pr[illegible] of [illegible]able homes [illegible] up. It s[illegible] to save [illegible] on building [illegible] free on req[illegible] today, or c[illegible] us.

All materials specified are of the very [illegible] grades obtainable in their respective [illegible] piece is inspected before it is sent to [illegible]ting room and experienced [illegible] so it is ready [illegible] three times before shipping.

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No wicks to tri[illegible] to wash. No [illegible] no glare or [illegible]lutely safe. Fuel [illegible] no danger [illegible] in straw W[illegible] [illegible] time. Address Our [illegible] catalogue No. 1[illegible]

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$1.00 the suit

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NO ICE NEEDED

[illegible] Refrigerator Keeps Food Better [illegible] Old-Fashioned Refrigerators
[illegible] Testimonials Always Tell the Truth
[illegible] of Selma has written as follows: [illegible] your Iceless Cement Refrigerators [illegible] it fine. It keeps everything— [illegible] bread—in fact, anything we [illegible]. We could not do without it [illegible] prefer it to the old-fashioned re- [illegible] recommend it to anyone."
[illegible] of Others on File
[illegible] system. Foods keep exceedingly [illegible]; keeps cool by evaporation; [illegible], reinforced; made in sections; [illegible] anywhere. Our steam temper- [illegible] almost as hard as iron; [illegible] ary in every way; not [illegible] strong solutions; does not [illegible] ment shelves; inside [illegible] perfect ventilation; no repairs; [illegible] ly refrigerator of [illegible] raise it; demand [illegible] through dealers
[illegible] devoted to [illegible] Iceless Cement [illegible]
[illegible] Co., Manufacturers, [illegible], Cal

The Dairy Cow

HERE are some of the methods practiced by the proprietor of one of the most successful dairies in Wisconsin. It would be well for some of our Pacific Coast dairymen to study these methods where they are found applicable to this region:

In summer the cows are brought in from pasture early in the afternoon and put in the barns. There is no driving—no hurrying. The cows are allowed to take their time, but are kept moving. The stables, of course, are ready. The feed is in place.

Each cow is fastened in place and hooked with a chain, which prevents her from lying down. Then the men begin to go over the animals. The udder, teats and flanks of each cow are washed with cool water. In winter the water is warmed slightly so as to feel grateful to the animal. The bathing is followed by rubbing with a soft, dry towel.

While one man goes down the line attending to this, another follows him with a pail in which he washes the cow's switch. This operation is conducted with thoroughness and the switch is wrung out as dry as possible.

As might be expected, these details require time because of the large number of animals to be given attention. There are, however, a number of men to do the work and it is done without unnecessary hurry or confusion. An atmosphere of quiet peace prevails the semi-darkened stable.

The result is that by the time the milkers sit down to milk—most of the milking being done by hand—the cows are ready and willing to respond. So far as possible the same men handle the same cows each milking.

One is impressed, after carefully following the methods pursued in these barns, with the thought that there is a certain psychology in handling a dairy cow. An animal which is prepared day after day for milking in the same quiet way comes to the actual milking process ready to give a good account of herself.

Since the manufacture of food nutrients into milk occurs largely during the process of milking the reason is evident as to how this can be helped or hindered by proper or improper preliminary preparation.—O. C.

Hog Cholera Prevention

KEEP the hog cholera germs away from your hogs, if possible.

If cholera gets into your herd, get a competent veterinarian and vaccinate your hogs at once.

Here are the ways cholera germs are likely to be carried to your hogs:

By owners of diseased hogs.

By your visiting diseased herds.

By hog buyers and visitors.

By dogs, cats and other animals; pigeons, crows, buzzards, etc.

By pasturing hogs near sick ones.

By purchasing new stock.

By streams running through the farm.

By exchanging work and by threshers.

By wagons, buggies and farm tools.

Keep hogs free from lice and worms.

Keep charcoal, slacked lime, soft coal and salt in the hog lot.

Keep the hog pens clean.

Asparagus can be grown on nearly all kinds of soils, but a sandy loam is preferred. In growing asparagus for home use the type of soil is not as important as a convenient location for the bed. As a rule, the home supply of asparagus is grown in the garden, which should be located near the house.

Faults in Feeding

WHEN a cow passes the dairy type to a reasonable degree and is not proving profitable there is some good reason for it. In theory the dairy type should mean a good cow, in practice the good cow always has the dairy type. The confirmation and the quality should be found together always. When the former exists without the latter it is the fault of some man and cannot be justly charged up against the cow. Either the man who raised her failed to so feed her as to develop her dairy qualities or her owner is not furnishing her the proper kinds and amounts of food. The chances are that her early treatment was faulty.

I believe more cows are ruined for dairy purposes before they are two years old than after they come in milk.

There are men who have tried to improve and breed up their herds only to get heifers that have proved interior to their mothers. As a result pure bred sires have been blamed and pure bred stock ridiculed while the use of inferior animals for breeding has been continued.

When a well bred heifer proves unequal to the parent stock it is usually the fault of the breeder and not of the breed. The breeder should shoulder his own mistake and not blame the sire and dam for his lack of wisdom in keeping and handling. The nerve force must be kept up, the lung capacity made large and the digestion powerful and unlimited.

Nerves, lungs, stomach and milk secure the first three with any dairy bred heifer and the last, which is the object for which we work will not fail. This has been my experience.

R. T. U.

Root Crops for Livestock

TOO few roots are grown for succulent food by the average farmer for feeding his livestock in the early fall and winter. There is no farm so large nor so small that it cannot grow a few tons of roots, such as mangels, sugar beets, carrots, rutabagas or turnips—particularly where corn crop grown for ensilage is not safe, as in the more northern sections of the State.

Carrots fed from four to six pounds per horse and from one to two pounds per sheep daily are a most excellent food. From twenty to thirty pounds of mangels, sugar beets, rutabagas and turnips fed per cow and from ten to twelve pounds fed to hogs daily are good rations. However, two pounds of rutabagas fed to a sheep daily is very much preferred by shepherds. It is well to feed livestock with succulent food during the early fall and winter, and at a time when they need such food most to tone up their system. Where labor is abundant and the price of concentrated feeds high, sugar beets, mangels, rutabagas and possibly carrots should be grown to replace at least one-half of the grain usually fed to milch cows, horses and hogs. Pound for pound, 90 per cent of the dry matter in roots and only 66 per cent of dry matter in grains is digestible. Roots are not only more palatable and more easily digestible, but furnish that succulency so much sought by the animal's body at a time when dry foods are fed so generously.

Where there are less than ten cows on a farm, or where it is not possible or practicable to build a silo on a livestock farm, then roots are a most valuable succulent food.

Many of the grape growers have been irrigating this season on account of the dryness of their land. This is unusual, but it will be profitable.

BANKRUPT STOCK
We have 100 pails Seneca Cow Remedies and Security Calf Food, Milk Testers, Bottle Caps, Separators, Vats, etc., at Bargain prices. Five-H. P. D. C. Motor, $75.00; Roof Paper—1-ply, $1.40; 2-ply, $1.75. Paints, all colors, $2.00 a gallon. Headquarters for hardware, garden tools, rubber hose, electrical goods, etc.
Mail Orders Filled.
Morris Hardware Company
526 S. Main St. Los Angeles

Cows Love Salt and Must Have It

Experiments Prove That Without It Their Vitality Suffers and Their Milk Runs Low.

Simplest Method of Supplying Needed Amount Is to Salt Hay While Stacking or Baling.

(From Pacific Rural Press.)

Salt is such a common thing that the very important part it plays in the health and milk yield of the dairy herd is perhaps not realized by many farmers.

Experiments conducted at the Wisconsin State Experiment Station prove conclusively that salt should be supplied to dairy cows unless the ration furnishes a sufficiency thereof. It is calculated that the minimum quantity in the food to keep a cow of 1000 pounds live weight in flourishing health is that which is equivalent to ¾ oz. of salt per day, and that a cow in milk needs as much more as will restore the proportion removed in the milk, namely, a little over ½ oz. of salt for every 20 pounds of milk.

The conclusions from these experiments are briefly as follows:

"In every case the cows exhibited an abnormal appetite for salt after having been deprived of it for 2 or 3 weeks, but in no case did the health of the animal, as shown by the general appearance, the live weight, or the yield of milk, appear to be affected until a much longer time had elapsed. This period of immunity varied with individual cows from less than a month to more than a year. There was finally reached a condition of low vitality in which a sudden and complete breakdown occurred. This stage was marked by loss of appetite, a generally haggard appearance, lusterless eyes, a rough coat, and a very rapid decline in both live weight and yield of milk. If salt was supplied at this period recovery was rapid. In one case potassium chlorid was given instead of common salt (sodium chlorid). Considerable of the potassium salt was eaten, though cows ordinarily refuse to touch it, and recovery followed as quickly as when common salt was supplied—evidence that not the lack of the sodium but the lack of chlorin was responsible for the troubles. The breakdown due to the lack of salt usually occurred after calving, when the milk flow was heavy, and generally the cows giving the largest amount of milk were the first to show distress."

Farmers who salt their hay when stacking or baling have found the plan an excellent and profitable one. The salt more than pays for itself in the increased weight of the hay, and besides improving the feed, it removes the danger of musting by checking the growth of molds when the moisture content of the hay is high. This is particularly true of alfalfa hay.

Twenty pounds of salt to each ton of hay should be used, which should be sprinkled on by hand as each three feet of the hay is stacked.

Auto Trailers $85 and up. 2 or 4-wheel type built to any capacity.
Let us figure with you in making over your old touring car into a 2 or 3-ton truck.
Truck attachments $350 and up. Made for any automobile up to 3-ton capacity.
Made in San Francisco. Write for descriptive circular.
Territory Open for Agents.

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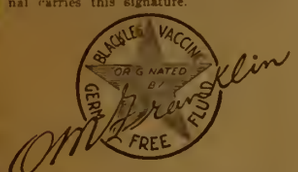
30 Eighth Street, San Francisco, Cal.

Kansas Germ-Free Fluid Vaccine for

BLACKLEG

This seal is our word of honor and your protection. If it is not on the label of every bottle don't use it. Only the original carries this signature.



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Made by Dr. O. M. Franklin, the Originator
Holds the record of immunizing more than a Half Million Calves against Blackleg, with—only one handling of each calf—has stood the test of time—easy and safe to use—cannot give the disease to calves or spread it in pastures.

Leading cattlemen use it exclusively and recommend it to their friends—ask any of them or write to the nearest office for references and free Booklet on Blackleg

The Kansas Blackleg Serum Co.
401 Bryson Bldg., Los Angeles, Cal.

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Located on Interurban Lines, Connecting to All Beaches, and on Local Lines to All Parts of the City.

Convenient to Shopping District and Theaters. Rates, with Bath, $1.00 and up.
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WM. B. CLARK, Prop.

"Good to the Last Drop"

CALVES relish and thrive upon Blatchford's Calf Meal, the milk substitute. They increase in size and weight rapidly; are healthy and vigorous, no indigestion—no scouring.

Blatchford's Calf Meal

should be used to push the calf forward to a grain diet. This important move is more essential now than ever.

Write for Booklet "How to Raise the Largest Calves at the Smallest Cost." If you raise any calves write for the booklet. It is mailed without cost.

BLATCHFORD CALF MEAL COMPANY, Dept. 118, Waukegan, Ill.
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SHORTHORNS

Paicines Ranch Company

offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves.

For prices and particulars, apply to

David J. Stollery
320 Sharon Building,
San Francisco, Cal.

How to Raise Calves for Veal

The Best System of Feeding

KILLING calves for veal has been frowned upon by some economists, and yet if plenty of calves were raised, this killing would not only not interfere with beef production, but would help to supply meat rations on a large scale.

About the best system for caring for veal calves that has been presented of late is that recommended by Gordon H. True and Clarence V. Castle of the University Farm at Davis, Cal., some of the essential points of which are here published.

The raising of a veal calf must begin as soon as it is dropped. The cow should calve in a well-bedded box-stall, which has been thoroughly disinfected with 5 per cent solution of cresol or a similar dip. In the summer a dry corral is just as good, as the sunlight kills all scour germs which are liable to infect the new-born calf.

To Prevent Infection

Soon after the calf is dropped the navel cord should be disinfected with a weak solution of iodine. It is sometimes better to wait until the calf has been dried off, as the cow may try to lick the iodine from the navel and get it to bleeding.

These precautions should be taken to insure against navel infections and the usually resulting scours. If the cord appears well dried up in twenty-four hours, no more iodine need be applied, unless the inner cord seems swollen, when it is of benefit to paint the swelling with iodine. If the navel becomes infected and suppurates, it should be washed out with 2 per cent cresol solution once a day until healed. Powdering with boric acid will help to dry it up.

Teaching a Calf to Drink

It gives a calf a better start if it is left with the cow from two to five days, which can be done with economy, as the milk can not be used for human consumption for at least five days.

If a calf shows signs of scouring, it should be taken away at once. It is sometimes hard to teach a calf to drink after it has been with the cow for such a period, but they will learn if shown correctly. Take the calf away from the cow in the morning and that night, without scaring it, place a finger in its mouth and try to induce it to suck. If it sucks the finger, gradually lower the hand into the pail and allow it to suck the finger under the milk. The hand can gradually be withdrawn and the calf [illegible] allowed continuously to drink.

If the calf will not suck the finger or if it doesn't care for the milk, do not try to force it, but let it go [illegible] out until morning, when the same process can be repeated with the [illegible] drinking the milk. It is worse than useless to try and force a calf to drink against its will.

While the calf is learning to drink and for a few weeks afterward it is better to use its mother's milk.

Milk and Grain Feeding

At the beginning a small calf weighing between fifty and seventy pounds should receive about [illegible] pounds of milk at a feed twice a day, while a large calf weighing between seventy-five and a hundred [illegible] should get from four and [illegible] to five pounds per feed twice a day. The milk must be either weighed or measured. A pint of milk weighs approximately a pound.

At the time of teaching the calf to drink from the pail, its stomach is very delicate and is readily disturbed by too large a feed of milk; therefore, beginning with a feed of four pounds, it should be increased a half pound every other day until six to [illegible] pounds at a feed are reached.

When the calf is about two weeks old a little grain can be given; when it is three to four weeks old it will eat from a quarter to a half pound per day. Barley ten parts, wheat middlings four parts, linseed meal one part, and coconut meal one part will make a nutritious and palatable mixture.

When to Feed Alfalfa

After the calf has learned to eat grain, a little choice alfalfa hay may be given it. But very little should be given until the calf is a month old, and then only as much as it will completely clean up, stems as well as leaves.

Alfalfa hay is not as laxative when fed with whole milk as with skim milk, nor will the calf eat as much with the former as with the latter.

Calves fed in this manner will make gains of from six to twelve pounds a week, on the average. Many Holstein calves will average two pounds per day.

The older a calf gets, the faster will be the rate of gain if it receives sufficient feed, and at two months old some calves may gain as much as three pounds per day.

Best Method of Smoking Hams and Shoulders

NEARLY everyone has a particular wood that he uses to smoke meat and thinks that no other wood is so good. According to Dr. P. F. Trowbridge of the University of Missouri College of Agriculture, there does not seem to be much difference between woods used for smoking if those of the pine family are avoided. Resinous woods deposit a black soot upon the meat.

In stringing hams and shoulders for smoking, Doctor Trowbridge recommends that a cut be made through the shank close to the bone, with a narrow blade knife. Push a looped wire through the incision. Thread a doubled twine into the wire. Loop and pull it through. Loop the twine over the shank, and pull it tight. Tie the ends. This string cannot pull out. For bacon use a regular bacon hanger or make a long skewer from No. 9 galvanized wire. Push the sharp skewer just under the skin of the bacon about one inch from the end. Tie the twine at each end of the skewer, and the bacon will be [illegible] shape while smoking.

Hang the meat in the smoke house so that the pieces do not touch. The meat should be suspended [illegible] feet above the fire.

Do not hang the pieces [illegible] over the fire, or better yet suspend a piece of sheet iron about two [illegible] above the fire so the heat will be [illegible] flected.

Warm meat will take the smoke much more rapidly than cold meat, and for this reason a continuous smoke the meat in a relatively shorter time.

Do not build too big a fire, as the smokehouse will become too hot, [illegible] causes excessive loss in weight due to dripping fat and to undue drying of the meat.

Green wood has some advantages over dry wood since the fire can be more easily controlled. The green wood does not make as much smoke except as a greater amount of smoke is driven off.

Cutter's

Germ Free

Blackleg Filtrate

and

Blackleg Tissue Aggressin

The New, Safe and Efficient Agents for Protecting Calves from Blackleg.

Cutter's Blackleg Filtrate positively protects against Blackleg.

Cutter's Blackleg Aggressin, made directly from animal tissues, **affords even greater protection** and is recommended for Pure Breds.

Neither the Filtrate nor the Aggressin can possibly produce Blackleg in even the most susceptible animals since **both are germ free.**

Both have given 100% protection wherever used.

Prices—

10 dose pkge. Filtrate	$2.00
50 " " "	8.00
100 " " "	15.00
10 dose pkge. Tissue Aggressin	4.00

N. B.—Cutter's Filtrate (a "cultural product" aggressin) is full 5 c.c. to the dose, as we believe that smaller doses, whether concentrated or not, afford less protection.

Write for booklet telling what germ free vaccines are and wherein **"cultural product" Aggressins differ from Cutter's Aggressin** made from animal tissues.

While these new "germ free vaccines" have advantages that should be known to every stockraiser, we see no reason for a quick change to them by stockraisers who have had satisfactory results from the use of

CUTTER'S BLACKLEG PILLS

"California's Favorite" for nearly 20 years

Year in and Year Out they have given better satisfaction than any other vaccine made, and as far as price and convenience of administration are concerned, they have all the advantage.

Prices:

10 dose pkge. Single pills	$1.00
50 " " " "	4.00
10 dose pkge. Double Pills	1.50
50 " " " "	6.00
Cutter's Pill Injector	1.50

Insist on Cutter products. If unobtainable, order direct. We pay shipping charges.

The Cutter Laboratory, Berkeley, Calif.
(U. S. LICENSE)
"The Laboratory That Knows How"

Startling Cattle Story

ONE of the most startling statements about the cattle industry in California was brought out recently by an inspector representing the California Cattlemen's Association. It was to the effect that the percentage of calves dropped from range cows in his section of the State was only 52.

This meant that only about half of the cows running in the range are dropping calves. In the range cattle sections of Texas and New Mexico anything less than 75 per cent is considered poor management.

If the inspector who brought in this report could have gone further and shown the average cost of the bulls in use, it would have demonstrated that the majority of them were a little better than scrubs.

A very pronounced movement is on foot to pledge the range cattlemen of California to the purchase of pure bred bulls at least. A further movement on foot is to list the number of registered and pure bred bulls in California that are available for service. These and other topics of equal importance and interest will be discussed at the range cattlemen's meeting to be held at Davis on April 8th and 9th, preceding the auction sale of registered Herefords on the 10th.

Inquiries for the catalog of the Hereford sale are coming in rapidly. The catalog is in press and will be generously distributed to cattlemen who are forward looking enough to have determined that in order to meet competition better sires will have to be obtained.—D. O. Lively, San Francisco.

Oatmeal in Bread

IN THE list of wheat substitutes posted at the grocers' cornmeal, oatmeal and barley flour represent the big grain crops of America, and with the clearing up of transportation they should be available in most localities.

As a wheat substitute oatmeal possesses several advantages. It can be obtained easily and if bought in bulk is not much higher in price than flour. Rolled oats or oatmeal will absorb more water than wheat flour and retain it longer. For this reason oatmeal bread keeps fresh longer than wheat bread. The oatmeal loaf has a greater nutritive value than even the straight wheat loaf, and its sweet, nutty taste commands instant favor.

Sandwiches of oatmeal bread and butter need no addition of meat to please the children. A few hickory-nut or walnut meats added convert oatmeal bread into a special treat.

Oatmeal bread is made as follows:

1 quart water
1 or 2 cakes compressed yeast or ½ cake dry yeast.
4 teaspoons salt
2 tablespoons molasses
3 cups rolled oats
8 cups wheat flour.

Mix as follows Soften the yeast in one-half cup of the water (lukewarm). Heat the rest to boiling, then stir in the rolled oats. Let it boil up once. Cool, add the salt and syrup, and when lukewarm add the softened yeast. Then add the flour to make a stiff dough. Mix and knead thoroughly. Let rise 3½ hours or until double in bulk. Knead or cut down the dough, add the remaining flour and let rise again until double in bulk (about 1½ hours). Shape into loaves. Let rise in pans until double in bulk. Bake 50 minutes to one hour.

If dry yeast is used make a sponge as follows: Soften the yeast in ¼ cup water. Heat the rest to boiling Stir in the rolled oats and boil up once Cool, add the softened yeast and one cup of flour Beat well and let rise over night

IF COWS COULD TALK

"Good morning, Mrs. Fawncoat. I hear that all the cows in the county are joining the 'Win-the-War' Club."

"Yes, Mrs. Starface; Secretary of Agriculture Houston says we must increase the production of butter-fat, and we cows have all promised to do our 'bit.'"

"There's one thing I want to say right now," spoke up Mrs. Black. "The farmers have got to back us up in this movement. I'm with the rest of you, heart and soul, but what chance have I got?"

"Why, Mrs. Black, what's the matter? You have a fine warm barn and plenty to eat and drink."

"Yes, I know; but what can I do as long as they use that old cream separator on the place? It never was any good anyway, and now it wastes so much cream I'm just plain discouraged."

"Well, you're not so badly off as some cows, where they haven't any cream separator at all."

"I don't know about that. There's a lot of cream separators in this county that are only 'excuses'—not much better than none at all. I tell you, Mrs. Fawncoat, with butter at present prices and the people at Washington begging every one to save fat, it's almost a crime to waste butter-fat the way some of these farmers do."

"That's one thing I'm thankful for," said Mrs. Fawncoat, "there's no cream wasted on this farm. We have a De Laval Cream Separator and everybody knows that the De Laval is the closest skimming machine."

"Well," said Mrs. Starface, "we never used a De Laval on our place until last fall and supposed one separator was about as good as another; but, honest, the De Laval is the first cream separator we've ever had that gave us cows a square deal."

P. S.

Of course your cows can't talk—but if they could you'd never have a moment's peace until you got a De Laval Cream Separator.

Remember that a De Laval may be bought for cash, or on such liberal terms as to save its own cost. See the local De Laval agent, or if you don't know him, write to the nearest De Laval office as below.

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST. Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Acme Ensilage Cutters and Blowers, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.

61 BEALE STREET, SAN FRANCISCO

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

SACKS For every use. Buy now, before prices advance. LOS ANGELES SACK CO., 344-346 Alisso St., Los Angeles, Cal.

ANTS SCHRADER'S Ant Destroyer is slow acting—does not kill instantly, but gets the nest as well as the parent. Does not lose strength. Positively non-poisonous—no danger to children, house pets or foodstuffs. Send 6c for trial can. Ask your neighbor. She uses it. At your dealer. Accept no substitute. Write Schrader Chemical Co., Dept. O, 19 to 29 Minna St., San Francisco, Cal.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.

Rose Crest Berkshires

The blood of such great sires as Master piece Rivals, Champion's Best and others. Name later on the Coast. I am offering at present 14 boars and 10 gilts farrowed in 1915 also fall pigs of both sexes.

Herd headed by Rookwood Baron, 10th N. 132792 and Ames Rival 113 N. 127834.

For full particulars and prices address

F. L. HALL, Perris, California.

DURO RESIDENCE WATER SYSTEM

Operated by

Electricity, Gasoline Engine, Belt or Hand Power

PRICES
Pumping outfits —$72.00 up.
Complete systems —$124.50 up.
F. O. B. Dayton

SPEED up the farm work. The country needs more food. Farms must be made more productive.

Running water in the home and in the barn has become a necessity.

"Duro" Water Systems are adapted to all the requirements of farm and country homes.

Low in cost and economical in operation.

Write for Information. There is a "Duro" representative and service man in your locality.

The Burnett-Larsh Manufacturing Co., Dayton, Ohio

SAVE YOUR CROPS USE "CARCO"

The only sure death to slugs, bugs, worms and plant pests of all kinds. Guaranteed to kill the pest—and not to hurt the plants.

Kills Cut Worms
Kills Ants
Kills Red Spider
Kills Mealy Bugs
Kills Chicken Lice
Kills Mites
Kills Root Maggots
Kills Canker Worms
Kills Borers
Kills Slugs
Kills Caterpillars

Prices f. o. b. San Jose

Pints .....50c ½ Gals. $1.30
Quarts .....80c Gals. $2.00

One gallon of Carco makes 126 gallons of spray ready to apply. WRITE FOR PRICES ON LARGER QUANTITIES.

Agents Wanted

We want live agents in all localities. Write for proposition.

ARTHUR CANN
198 South First Street, San Jose, Cal.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

Don't Drown Earth Worms

Feed Them Humus and They'll Help You

W. R. MITCHELL, the well-known soil expert, contributes the following to Orchard and Farm on a curious and obscure point in agriculture—the conservation of the earth worm:

Soil fertility is attracting very much attention today. Our cultivated plants are of increasing importance in our new and exceedingly complex food problems, and who is there among us with sufficient wisdom and practice to guide? The humble earthworms are worthy of more attention on the part of practical farmers.

Surface irrigation has proven detrimental to their welfare in many ways, and as the "fishworms" do not have fish gills, excessive or free water is not desirable, as observe their coming from their burrows during heavy rainfalls. They must have their skins moist for breathing purposes.

Earthworms' Work Valuable

To irrigate the soil with table water is to cause the earthworms to burrow as deep as we desire. As they swallow the earth and bring their castings to the surface, the deep soil is brought up and is in a fine condition for desirable plant foods.

The earthworm's work of burrowing for moisture is very valuable to the agriculturist.

If we are wise farmers, we will let the earthworms do the deep plowing and bring up the much-needed deeper soil plant foods.

Rich humus in the process of decay is the earthworm's food supply, and far too much of our farm land is so deficient in humus that most of our valuable soil-fertility workers are starving. To have their remarkable services, our well informed practical farmers will plow under more legume cover crops for green manure.

Feed on Humus

Humus, to be of most value, is quite uniformly about six inches below the surface and its water capacity is often 40 per cent or more.

Surely, humus makes a fine sponge, and with well chosen tools for surface cultivation for water conservation more intelligent food production can be done.

Feeding healthy earthworms pays large profits in practical agriculture. Surface irrigation must be changed in many parts of the country, and to tile drain your land for subirrigation is important. Subfertilization, with the desirable plant foods in solution in the subirrigation water, will be of increasing importance as we know the valuable plant foods.

Help Plants to Breathe

Sub-aeration, through the tile drainage system and the numerous earthworm burrows, means much for the respiration or breathing activities of plant life. Roots must breathe as well as shoots, and the burrows of fat fishworms are of great importance

Deep plowing by an abundance of earthworms means remarkable soil fertility.

Our well-informed practical agriculturists and orchardists are aware of the fact that fat fishworms make fat farmers; what are you feeding yours?

Surely, none of us will continue to be inhuman and drown them and fail to see that they have an abundance of humus to eat. One foot in length and a quarter inch through are the only kind that will do in the future to accomplish deep plowing.

In many arid localities it may pay to import some big, healthy, well-fed fishworms for good breeding stock. Weak, underfed animals are not usually considered the best, and the deep plowing will pay.

Pays to Feed the Worms

So why not utilize the services of our humble earthworms? Their healthfulness and success mean our plant food producing wealth.

It will pay to feed the earthworms and adjust the water conditions so they can and must do our deep plowing. Much of our soil mechanics may be saved by more knowledge and practice of soil biology.

The richest soil is inhabited by the biggest earthworms.

How to Use Lime in Your Soil

WE are very desirous of securing some authentic information on the use of lime as a soil corrector. Therefore, we are taking the liberty of asking you the following questions, which we hope will receive your careful and prompt attention:

1. Why should farmers, orchardists, vineyardists, etc., use lime as a fertilizer?
2. What kind of lime is best assimilated by all crops?
3. What kinds and conditions of soils are best aided by lime?
4. Should lime be used on both cultivated and raw land in certain emergencies?
5. How should lime be applied and how often?—R. D. B., San Francisco.

Reply by the Editor

1. Strictly speaking, lime is not a fertilizer. It is used to correct soil acidity, to assist the decomposition of organic matter, to encourage the growth of nutritive plant life and to make soil potash and soil phosphates available.

2. Ground limestone, if not adulterated, and if fine enough to pass at least 75 per cent through a 100-mesh screen, is suitable for most purposes and costs less than any other form of lime.

3. An acid soil will turn blue litmus paper red, thus indicating the need of lime. In general all stiff soils need it at times to flocculate them and to render them more mellow. Soils that are poor, light or dry need very little lime and not often. Many soils need no lime at all.

4. The best results are obtained by using the lime on plowed land. Don't turn it under with the plow, but harrow it in after the soil has been turned over

5. Distribution should be made evenly with a lime distributor or by throwing it out of the back of a wagon with a shovel. On heavy soils the application should be from 1200 to 2500 pounds to the acre every two or three years. On light soils 500 to 1200 pounds are generally ample.

Did He Mean Pine Trees?

AMBASSADOR GERARD in his memoirs tells us that the German Kaiser after war was declared told his soldiers that they would be home again before the leaves would fall. Gerard says that some German wit after the war had been going on for about three years insisted that the Kaiser must have meant "pine trees."

How Seed Prices Are Soaring

(Continued From Page 3)

hard and Farm in reply to inquiries s to the seed situation:

"There has been little or no surus of garden seeds this season, and ext season's seed crop is in a very certain way. We are not making y contracts to furnish seeds for 919, though we always have been ady, as a rule, in past years to conct ahead with dealers and growers.

"Carrot, beet, onion and salsify eeds were put into dry ground in e planting season. Onions were ewhat affected by dry rot in conequence of this condition, but the nion situation is nothing to worry bout—it is not what one might term calamitous. There may yet be an average yield. It all depends upon climatic conditions.

"As to the general run of garden eeds for next season's planting I hould say that the shortage would be uite considerable, though, of course, it is too early to make a prediction.

Seed Prices Are High

"As to present prices they are about 50 per cent higher than in normal seasons. There are two reasons for this. In the first place seeds have been sold away below what they should have brought, and on that basis the dealer and gardener are inclined to think that the grower is a little too arbitrary—that he is taking advantage of the war situation. Now this may be true in the case of a few growers and speculators, but in most instances the increase is justifiable. This brings us to the second and most portant cause of high prices—the fact that we are paying $3.50 to $4 a day for labor which we formerly paid only $1.75 to $2. This makes prospective land tenants think twice before they hire land, and has made the whole industry of garden and agricultural production rather a precarious one. Still I am of an optimistic mind concerning the situation, and it may turn out much better than is indicated at present."

Profiteers Beware!

Orchard and Farm has received quite a number of complaints from farmers and gardeners as to high prices of seeds paid to profiteers. Some of these prices have been quite abnormal—so much so that they have been turned over to the authorities. No complaints have been received as to the seed firms advertising in this paper. In fact farmers and gardeners will be perfectly safe in buying their seeds from Orchard and Farm advertisers. This journal will not print the advertisements of fake seed firms or of any speculator who is trying to corner the market in any kind or variety of seed.

The earmarks of the faker are well known to the managers of Orchard and Farm, and none of their advertising is accepted at any price.

True to its oft-expressed policy of championing the farmer, this paper will take all necessary steps to suppress the activities of the gentle profiteer. Let us know of any attempt he may make to extort money from you through the medium of abnormally high prices.

This is the wrong time for anybody to boost the prices of seeds beyond what is justified by present conditions, and whosoever does it will be punished.

For the Boys in Camp.

WILL you help the soldier boys in camp by sending to the persons authorized to receive money for the War Camp Community Recreation Fund a sum that will insure at least one of our valiant army men social and recreational facilities when time drags heavily on his hands and he is tempted to spend it in resorts of vicious men and women?

Do this today! If you subscribe $3 to this fund you will have the satisfaction of knowing that at least one man in our noble army is going to have the benefit for a whole year of social and recreational advantages that would otherwise be denied him.

Do this for the sake of your neighbor's boy, if you have not one of your own in the army; and, we repeat, do it today!

Ready for Bulk Grain

STORAGE facilities for 1,000,000 bushels of bulk grain are to be ready at Astoria, Or., by shipping time this season, according to gures issued by the port of Astoria mmission.

The entire million-bushel plant is ilt of re-enforced concrete. Each f the two storage units has 18 bins s ring 22 feet 8 inches in diameter 76 feet deep.

The port commission owns 56 acres nd at Smith's point, on the main nnel of the Columbia river, and ude railroad trackage on either side for storing loaded cars. The elevators have a capacity of 5000 hels an hour and the number of ns is designed to be ample to accommodate all the different grades of grain that will be re-

[illegible] in the plant is elec-

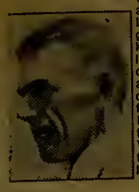
[illegible] storage fa-[illegible], the plant [illegible] 1,000,000 [illegible] grain

Testing Cuts Dairy Expense

DAIRYMEN who have had their profits reduced by increased food cost will find considerable relief through cow testing associations. The cow testing association places responsibility on each cow to demonstrate her ability to pay for her feed and return a profit to her owner. The loafers in the herd cannot be detected without some system of records. The cow testing association enables the dairymen to calculate the amount of milk and butter-fat which each cow returns for the feed she consumes. A system of records will disclose some eye-opening facts concerning the production of individuals of the herd.

Birds are very bothersome in fruit season. To keep them out of your fruit trees hang bright strips of tin—pieces of cans of any kind will do so long as they will flash in the sun—in your trees, and watch the result. Generally speaking the birds will shun a tree that is so spectacularly equipped A mirror would be better, but the cost is rather too high.

Get Bigger Crops—Analyze Your Soil



I can show you the best uses to which your land can be put. I examine soil with the view of telling farmers what crops can be grown most abundantly. Definite knowledge of physical and chemical character of land, knowledge of origin, composition, properties and functions of soil and relations of crops will enable you to plant for far greater crop production. Every owner of land should have this information. Let me help you. Write today for instructions as to taking samples for analysis in my laboratory.

MARK WALKER,
Chemist, 211 West First St.,
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Here we show you one of our popular electric washing machines. This machine is equipped with a strong G. E. motor, and has a large swinging reversible wringer, with 11 inch, 5 year rolls. It is noiseless, easy to operate, and will wash the dirtiest clothes clean in a very short time. Send us your order today for one of these wonderful labor savers.

A. A. WILSON
The Electric Washing Machine Store,
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Commercial Beans for Commerce

Plant the right variety in the right place:
Pintos and Teparys away from the coast on mesa land, with or without irrigation.
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Limas and Blue Pod Navys on loam soil, near the coast.
Lady Washington on more sandy soil.
Apply Westrobac to the seed when planted on sandy or loam soil.
Plant only the New Mexican Pintos. We have a car load just received.

AGGELER & MUSSER SEED CO,
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25c to January 1, 1919

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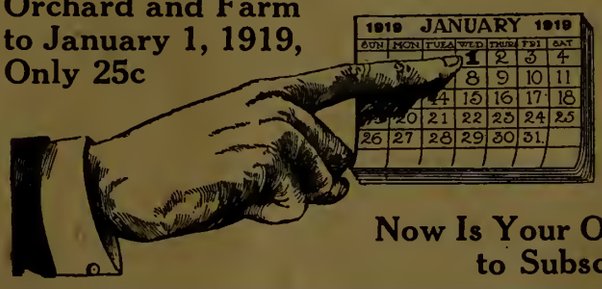

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Your neighbors would like Orchard and Farm just as well as you do if they would only try it long enough to get acquainted. Show your friends a copy of the paper and tell them what you think of it, and offer to send a trial subscription at this 25c rate. In return for your help we will send you a premium as per the following schedule:

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Sewing Awl	Ever-Ready Wrench	Eight-piece Kitchen Set
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Eight-inch Pincer	Steel Mantle Burner	
Pocket Doctor	Progressive Agriculture	Practical Farming

USE THIS ORDER BLANK, OR A LETTER

Orchard and Farm,
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Los Angeles, Calif.

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Mr. Orchardist, Be Prudent!

Dangerous Police Power Entrusted to You.

It is not often that California orchardists overstep the bounds in their zeal to eliminate fruit tree pests, but they have been known to do so. On this subject Attorney General U. S. Webb of San Francisco has written the following excellent advice to the fruit grower:

HERE is a beautiful orchard grown at great expense until at last it is bearing fruit for him who has looked forward to that day. Through no act of his it becomes infested.

Perhaps the infection may be of such a character that a not too careful inspection would enable the inspector to say it should be destroyed and cut down. Perhaps caution and care and honesty and ability and intelligence will provide the means whereby the evil can be eradicated and the orchard saved.

The law means that you shall save the orchard, that you shall accomplish the beneficent and advantageous purposes of this statute through the infliction of the least possible injury and cost to the property owner.

It is intended and hoped that in its administration he will say: "Here comes a friend, a man charged with aiding me to avoid the loss with which I am threatened, aiding me in preventing the infection which has started here from spreading to my neighbors and throughout the State."

A Dangerous Power

As you exercise sense and caution and judgment in your daily and personal affairs, make up your minds to perform your functions under these statutes in the same way. Keep your head. This is a statute exercising the most beneficent power, and at the same time it exercises the most dangerous power which any government possesses.

The police power is not always used as a power to perpetuate the ends of justice and mercy; administered unwisely it could be used as an injury.

The government is reaching out into the control of the rights of the individual. More and more has the State of California reached out to the control of the activities of the individual than in former years.

More and more is the government taking up and taking control of that which you are daily engaged in, and in that control saying how you may do this thing, when you may do this thing, what you may charge for this service or this commodity.

Wondrous results are being worked out under that policy in the State and nation, and yet that power must be exercised always with prudence and caution or the power to benefit the public at large may become an unbearable, vicious oppressor of the individual.

Day of the Profiteer

The plan to be worked out is to yield to the people the greatest amount of good by placing on the individual such wholesome restraint only as may be required to work out the desired result. To illustrate the beneficent result of an intelligently exercised governmental control of individual activity within the past year or two, and more noticeably within the past eight months, many of the people of the State and of the nation have become exploiters of the world's distress for private profit.

The price of shoes has gone higher, fuel has gone higher, everything has gone up but gas, light, water, transportation, freight. Why? Because the State has extended its police power and reached out to the institutions it is controlling and says, "You may run this business as of old except that your price list must be submitted to the State for approval and your prices can not be raised unless you have the approval of the State authorities, with the assurance that whenever your prices are being fixed for water, heat or power they will yield you a proper profit upon your investment. If thereafter the cost of production increases, apply to the proper authorities and the authority to increase that price will be given."

It is not the purpose of the State to prevent a proper profit being made. It is exercising its power to prevent the exploitation that I speak of.

The same power which controls the commodities mentioned, the same power which controls the prices of our great power companies in California which authorizes orchardists to direct that certain means be taken to control or eradicate certain pests, and it produces beneficent results when that power is used with wisdom, judgment and caution, and becomes an instrument of oppression whenever it is diverted from that purpose and used unwisely, wrongly, and without judgment and caution.

The Proper Pruning of Walnut Trees

LAST autumn Orchard and Farm gave its readers the benefit of the Neff walnut pruning practice. Here is another system, practiced and recommended by J. B. Stoner, a Northwestern nut grower:

"If it is necessary to cut away any larger branches at any time, a sharp saw should be used, and the wound painted over with old, ropy linseed oil. Late experiments prove this to have the best adhesive and enduring qualities of anything yet tried here. It will make no difference if there is a little white lead or other pigment in it. Just oil off of any old paint.

"The pruning should be done at any time when the tree will not bleed, when the first flow of sap is rising in the spring. Summer, fall or winter will do. Bud pruning is best. Push off the bud or sprout as soon as discovered, if it is growing where not wanted, and do not wait until the branch has used up that much more of the energy of the tree.

"Growers must remember that after the first two or three years, if the tree has a good root system, the walnut tree is one of the most rapid growing of all the trees, and the summer time will be the "busy day." Governor West's trite remark, "To make a success of farming a man must not get a hundred yards from it," will apply here, as well as to many other starting enterprises.

"Every tree should be tagged and numbered, and a record kept of its growth and habits. Make a pet of every walnut tree. Train and bend it the way it should grow. Stroke it gently when you go near it. Pinch off any bud that starts to make a branch where one is not wanted; don't wait for a great branch to grow in the wrong place and then slash it off with a dull ax. It will pay you to be good to the walnut tree."

Vegetable Garden 25c

Lettuce, cucumber, radish, beet, carrot, parsnip, peas, beans; enough for your garden postpaid. Pine Tree Nursery, Round Pond, Me.

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for Horses, Milch Cows, Chickens, Young Pigs and Hogs. Cheapest feed in the market today. If your dealer doesn't carry it, address

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Eliminate guesswork and approximations and give a square deal to both water company and consumer. Read as easily as the watch you carry. No clocks, charts, pen or pencil. No supervision. Measures water in open ditch, gravity, pipe lines and gravity deliveries from pressure pipe lines.

Send for descriptive booklet, "The Water Watch."

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Cut Your Feed Costs 1/3rd!

Junior Mill Capacity 600 to 900 lbs. meal per hour 6 to 8 h.p. engine.

Channel Strips for Slicing Ear Corn.

Meal Recutting Attachment

Write For Amazing NEW SMALLEY Book FREE!

Thousands are filling their Silos quicker! easier! cheaper [illegible] better cut ensilage than ever! With the famous patented Recutting Attachment, they're making dairy feeds, turning roughage into tempting meal, [illegible] hogs, cattle, sheep, poultry [illegible] cost-red[illegible] of it. Makes wonderful combination meal-feeds from clover, corn stalks, snapped corn, bean straw, pea vines, oats, rye—Cracks peas, corn, beans! — Handles leaves, stem and all. Saves waste — doesn't injure color of hay!

Meal capacities range from 1080 to 2340 lbs. per hour ([illegible] to 900 [illegible] meal per hour with Junior Mill driven by 6 to 8 h. p. engine).

Smalley Silo Filler Seven Sizes

Grip Hook Feed Table

Makes silo filling as easy as A B C! Grip hook Force-feed TABLE and paddle [illegible] feeds the power[illegible] lawn-mower [illegible] [illegible] silo tonnage—pays for itself quickly. Patented [illegible] one-piece CHAIN DRIVE Blower. Saves 1-5 to 1-4 power costs. [illegible] slippage, belt troubles—[illegible] cleaner—saves time, money, trouble. Blower and cutter work independently. Speed up fan—or [illegible] speed of knife shaft remains the same. Four sizes of Alfalfa cutters with top apron. Book explains all. It's FREE with samples of meal. Write

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BUILD your own sidewalks, foundations, floors, watering troughs and other concrete jobs. No need to wait for a contractor and pay high wages to get this work done. Do it yourself, economically, efficiently—with a

BERGLAND CONCRETE MIXER

Turns out a perfect batch—one a minute—enough in an hour to build a 40 ft. walk. Hand or power operated. Centralized transmission — no power wasted. Barrel works on rollers—minimum friction. Strong angle iron frame. Unlimited guarantee. Low priced.

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Weighs less than 200 lbs.

FISH Salmon in brine, 100 lbs., $11.00. Shipping weight, 175 pounds. Smoked salmon, 20 lbs., $3.25. Dried codfish, 10 lbs., $1.75. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

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Take Taxi at Station at our expense

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High Lifting of Water

HIGH-LIFT pumping is an indefinite term and the limits of high-lift pumping depend altogether on the attendant conditions. There are pumping plants in California where the actual lift is over 400 feet, but the cost of raising the water so high is not considered prohibitive inasmuch as the water is used for citrus fruit growing, and each acre-foot of water, wisely applied in the orchard, makes possible a large return.

In Arizona nearly all of the active pumping plants have lifts less than 60 feet, but a good many plants have been installed in recent years where the lift is more than this, in some cases being in excess of 100 feet.

One case of high-lift pumping in the Salt River valley worthy of special mention is that of the Germann Ranch near Higley. The depth to water at this ranch is 85 feet, and the pumping lift is almost exactly 100 feet. The owner, Mr. Germann, and his three sons have worked assiduously to bring the ranch into its present productive state, and they have attained an enviable success.

In analyzing their conditions, several factors are seen to have been of great importance. In the first place an excellent well was obtained by the driller so that there is no lack in their water supply. In the second case, the owner is a man of exceptionally fine business judgment, and his farm has been conducted with the same care and foresight and economy that is exercised in well managed business enterprises. In the third place, the crops grown have been those adapted to the climate and producing high value per acre, and crops such as alfalfa have been avoided, since alfalfa is the water gourmand

No formula can be written which will give the limit of profitable pump irrigation. A great many failures have occurred where the lift was less than 50 feet. It may be said that, given good soil and climate and ample water supply, with the necessary capital and good business judgment and industry, and with crops of a high value per acre, it is possible to succeed even though the pumping lift reaches 100 feet. But in general it is much safer to tackle a proposition where lift is not over 50 feet and this is especially true in the case of alfalfa. The cost of pumping is nearly though not quite proportional to the lift.—G. E. P. Smith, Irrigation Engineer, University of Arizona.

Small Poultry Farm Pays

J. F. FORNEY of Kingsburg, Cal., president of the Fresno County Poultry Association, is quoted as saying that a man with 1000 good chickens and five acres of land can support a family. Here is an example of a small lander on a poultry ranch:

In the town of Reedley, Fresno County, J. P. Shultz has a little place of an acre and a quarter. He has a house, of course, and a barn and kitchen-garden, and he also has a mature vineyard and a diminutive alfalfa field, the latter for a cow which he has to provide for. Besides supplying their own table, Mrs. Shultz sold $50 worth of butter last year. The vineyard produced half a ton of raisins and $10 worth of grapes. There is a nursery with 225 eucalyptus trees. There is an orchard of a dozen fig, peach and almond trees and the prunes of the trees and vines, and of the eucalyptus provide nearly enough fuel for the house, only two and a half cords of wood being required last winter.

Coal oil is used during the summer, the family buying a month for fuel at a time. With all this dairy, orchard, vineyard and forest on an acre and a quarter, that would scarcely suffice for a poultry farm. But it is more than sufficient for Shultz. It supplies three families of an acre, or more than enough income of the ranch to keep them in liberal plenty, just of [illegible]

MONEY SAVING BARGAINS
FOR ORCHARD AND FARM READERS

In these days of high prices, in these days when we have to curtail our expenses to help win the war, it probably seems strange that you cannot only get all you are accustomed to, but can actually save money.

Look over the magazines listed below. Are they not the best, the most delightful, the most timely, vitally important and fascinating?

By taking advantage of Orchard and Farm Magazine service, you save the agent's commission.

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Orchard & Farm Mag. $ .50
American Magazine... 2.00
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Hoard's Dairyman ... 1.00
Breeder's Gazette 1.00
Northwest Poultry Journal ..... .75
All for only $2.50 — You save 75c

Orchard & Farm Mag. $ .50
Hoard's Dairyman* or Breeder's Gazette 1.00
Both for only $1.25 — You save 25c

Orchard & Farm Mag. $ .50
Sunset Magazine 1.50
California Poultry Journal ..... .50
All 3 for only $2.00 — You save 50c

Orchard & Farm Mag. $ .50
Woman's World* ..... .50
Both for only 75c — You save 25c

Orchard & Farm Mag. $ .50
Hoard's Dairyman 1.00
Both for only $1.30 — You save 20c

Orchard & Farm Mag. $ .50
Sunset Magazine 1.50
Practical Farming & Gardening 1.00
All 3 for only $2.25 — You save 75c

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Everyweek (52 issues) 1.00
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Orchard & Farm Mag. $ .50
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Orchard & Farm Mag. $ .50
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If You Don't See What You Want Make Up Your Own Club

Clubbing No.		Regular Price	With Orchard & Farm 1 Year	With Orchard & Farm 3 Years
25	American Boy	$1.50	$1.60	$2.10
40	American Magazine	2.00	.75	2.60
7	American Poult. Advocate	.50	2.10	1.25
25	Boys' Life (Boy Scouts' Mag.)	1.00	1.15	1.65
17	Boys' Magazine	1.00	1.10	1.60
20	Breeders' Gazette	.50	1.30	1.80
35	California Poultry Journal	2.00	.75	1.25
50	Christian Herald	2.50	2.10	2.60
80	Collier's (National Weekly)	1.50	2.60	3.10
30	Cosmopolitan	5.00	2.00	2.50
20	Country Life in America	1.50	5.10	5.50
27	Delineator	1.00	1.60	2.10
30	Designer	1.50	1.20	1.70
15	Etude (for Music Lovers)	1.00	1.70	2.20
	Everybody's	1.50	1.60	2.10
	Everyweek (52 issues)	1.50	1.10	1.60
	Good Housekeeping	1.00	2.00	2.50
	Hearst's Magazine	1.50	2.00	2.50
16	Hoard's Dairyman (52 issues)	1.00	1.50	1.75
	Ladies' Home Journal	1.50	2.00	2.50
100	Life (52 issues)	5.00	5.10	5.60
60	Literary Digest (52 issues)	3.00	3.35	3.70
25	Little Folks	1.50	1.85	2.35
12	McCall's	.75	.90	1.40
25	McClure's	1.50	1.85	2.35
40	Metropolitan	2.00	2.25	2.70
22	Modern Priscilla	1.25	1.50	2.00
23	Mothers' Magazine	1.50	1.60	2.10
10	Northwest Poultry Journal	.75	1.00	1.50
10	Orchard & Farm, 1 yr.	.50	...	...
20	Orchard & Farm, 3 yrs.	1.00	1.70	2.20
30	Pictorial Review	1.50	1.70	2.20
30	Popular Science Monthly	1.50	1.00	1.50
28	Practical Farming & Gardening	1.00	3.10	3.35
45	Review of Reviews	3.00	2.00	2.50
	Saturday Evening Post (weekly)	1.50	4.10	4.35
70	Scientific American (52 issues)	4.00	4.10	4.35
71	Scribner's	1.50	1.60	2.10
25	Sunset Magazine	.75	.90	1.40
12	Today's Housewife	1.50	1.10	1.60
15	Woman's Magazine	.50	.75	2.10
30	Woman's Home Companion	1.50	1.60	2.10
10	World's Work	.50	3.10	3.35
50	Youths' Compaolon (52 issues)	3.00	2.50	3.00
40		2.00		

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Add together the clubbing numbers of the magazines wanted; multiply the sum by 5. This total will be the correct price to remit. For instance:
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ORCHARD *and* FARM

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Avoid the Fat Cow

A CERTAIN proportion of the food of a cow is utilized in running her machinery and the question is, what does she do with the surplus of her food? If she returns it in the form of milk and butterfat she may be a profitable cow, but if she lays it on her back as fat she is not a fit subject for the modern dairy.

The cow that has a tendency to lay on fat is to be avoided if one wants cheap milk production.

The size of the cow has little or nothing to do with the cost of milk production, as has been abundantly proved by experiments. It has time and again been demonstrated that there are large cows with comparatively small feeding capacity, and on the other hand some small cows have even greater feeding and digesting capacity than some of the larger ones.

In our own herd we have both of these kinds of cows, little cows that eat less, but they are all profitable, otherwise we would not spend a minute's time in getting rid of them and putting better ones—animals that pay—in their places.—B. A.

Lively War Talk

(Continued From Page 3)

ships to carry it to Europe. Germany was submarining. Those millions of bushels of grain lay in the open—rotting. Finally, some of it was sacked and used to house the rest. Then the mice got into the grain until the government of Australia took a hand and, night and day, thousands of men battled with the mice, finally winning the battle with the mice. Most of the grain was lost.

Do you doubt it? Ask the cotton grower of Southern California or the Gulf States. In the fall of 1914 he had to appeal to you and me and the fellow working at a job in the city to buy a bale of cotton to save the harvested cotton crop. You remember that. Ruin stared him in the face. Why? Because Germany had scared our shipmasters off the Atlantic and the cotton grower could not sell his crop.

Ranchers of the West! This war is our war. It is every American's war. It must be won. It has and will cost much in lives and money. It is bringing death to our sons.

Ranchers of the West! The government of the United States asks us to lend it our profits, our savings. We are men of honor. We are Americans. The nation trusts us.

Go to your bank today. Tell the bank you are behind the government and that you want to buy Liberty Bonds. No matter whether you have the cash or not. Your banker has promised the government to help you buy bonds on time It is your duty!

How Is Your Car Running?

Is It Consuming Too Much Gasoline?

A FEW years ago a certain car was driven over Long Island roads for eighty-seven miles, consuming a total of one gallon of gasoline, which is no doubt a record economy performance. While such results may hardly be expected by the average owner, it merely indicates the limit of attainment that is possible by close attention to car conditions and to driving. Every present owner by attending to a few apparently minor details can save from twenty to one hundred gallons of fuel annually and at the same time obtain the benefits which accrue indirectly from the attempts made at economy.

The driver who is anxious to save fuel must reduce the idling periods of the engine. If you were to figure out the length of time the engine was kept idling during the entire year, you would find that it amounts to a surprising number of hours; this means fuel wasted. Coasting saves gasoline; so obviously on long down grades the engine should be shut off and the car permitted to descend without using fuel. When stopping the car, the engine first should be slowed down as much as possible and the brake applied when near the point of stopping.

Substituting Cheaper Fuel

By using cheaper fuel you naturally save money, but only if the engine can successfully use the low-grade fuel. There are thousands of owners whose cars may be operated without any change on a mixture of gasoline and kerosene in varying proportions. Some cars can not use it. It is worth while to try one gallon of the mixture. Perhaps your engine can use it and give close approximation to your ideal of performance. Especially during the warmer weather will it be found practical to employ a mixture, and in innumerable cases kerosene alone will prove satisfactory without any change in the carburetion system, although in some cases it might be found that performance is impaired. This, however, will be in the nature of the inability of the engine to throttle as before and to show the same acceleration.

In order to get the greatest benefit from every drop of fuel, the carbureter must be so adjusted that it will use the very maximum of air consistent with the needs of the driver as to performance. Permit an expert to adjust the carbureter for economy. The installation of a fuel-saving device in the form of an air valve is not advised unless the carbureter is of obsolete design or an actual trial has shown the device to effect a saving.

Look to Wheel Alignment

It takes more power to pull a sled than it does to draw a wheeled vehicle because of the greater friction of the sled. When wheels are out of alignment, they cause the tires to scrape across the road surface at intervals, thus wasting power and fuel. The cost for checking wheel alignment is trifling compared with the saving in fuel and in tires, which are ground away as they would be if the tread were filed. If the brakes drag—that is, if the bands scrape against the drums in normal running—there is needless friction and needless waste of fuel.

A carbonized engine wastes effort or fuel. It also wastes fuel if the piston-rings are worn, by permitting the gasoline mixture to be forced into the crankcase. Here it does harm by mixing with the lubricating oil. When an engine persists in carbonizing rapidly (at intervals of less than 3000 miles), there is a reason for it, and in cases of this kind the cause rather than the effect should be treated. A carbonized engine overheats readily, it does not have the power it should, it knocks at the least provocation, it is noisy and misfires. Most of these are power wasters, eating into the pocketbook of the owner. With the carbon removed, not only is fuel saved, but the performance of the engine becomes somewhat like its former self. An engine with leaky valves has an impaired "respiratory" system. Another leak plugged means another saving in fuel—and performance.

Of what value has a good mixture of gasoline and air if it is only partially exploded because of an insufficiently hot spark? The ignition system, then, must be working at its best. If a battery is used as the sole source of current, it should be given its weekly or semi-monthly supply of distilled water. It should be tested at each filling. The wiring should be tight and the terminals clean.

Friction and Lubrication

The engine may be developing its greatest power, but much of this power may be wasted at the clutch if it is slipping. Why pay attention to the engine so it will be at its best if the power is not to be used? A slipping clutch is a wasteful clutch. Often this condition may be remedied by a simple adjustment requiring twenty minutes.

Wasteful friction, again, must be attacked by close attention to lubrication. This applies to every part of the car, since the lack of oil at any point means waste of power and fuel because of it Grease should be removed from the transmission and differential housings and heavy oil substituted, not only because the oil is easier to drive through, but because it is better for lubrication. The woman of the family should become familiar with the various oiling places on the chassis, and the best method is to get a lubrication chart from the manufacturers. Usually there is one in the instruction book. Oil copiously, and if you can not reach a part yourself, do not forget all about it. You would not permit your sewing machine to run without a drop of oil. It would take more effort to operate it. The condition is the same in the automobile.—Harry A. Tarantous.

In selecting a calf to raise one should look to the head and neck for strength. The young bull that has a feminine appearance will never make a good sire.

Big Hominy

IN NUTRITIVE value, corn ranks next to oats as a breakfast food. Big hominy or hull corn prepared at home is an old time favorite. Select sound white flint corn. Remove chaff by pouring from one pan to another. Do this where there is a strong breeze. Wash grain thoroughly in water. To a pint of corn add a tablespoon of carbonate of soda Cover with water and soak over night. Drain and wash thoroughly in two waters, rubbing the corn with the hands. This removes the hulls which will rise to the top and may be poured off.

Boiled Hominy

Salt and boil corn slowly until thoroughly tender. This can be served instead of potatoes for breakfast, dinner or supper. With milk and salt it makes an excellent breakfast food.

Browned Hominy

Heat in an iron skillet a teaspoon of fat. Fill skillet with boiled hominy and press down tight. Bake in oven until a thick rich crust is formed on bottom and sides. Loosen from skillet and turn out on flat dish, brown side up. Serve at any meal; it is always good.

Hominy and Cheese

Put in greased baking dish alternate layers of boiled hominy and grated cheese. Pour over it enough milk to come halfway to the top. Cover with buttered crumbs and brown. Serve this as a substitute for meat.

Why They Are Called Huns

WHY are the Germans called Huns? The Huns were a cruel, warlike race that lived in Asia about the time of the dawn of the Christian era. In the fifth century they overran and desolated a large part of Europe and laid Rome under tribute. Apparently the Kaiser of Germany admired the deeds of these barbarians, for when he sent his troops to China in 1900 he instructed them to show no mercy and take no prisoners. Said he, "As the Huns, under King Atilla, made a name for themselves which is still mighty in traditions and legends today, may the name of German be so fixed in China by your deeds that no Chinese shall ever dare to even look at a German askance. Open the way for Kultur once for all." Since then he has been proud to call his soldiers Huns,

We Want New Farming Facts

ORCHARD AND FARM asks you to send in little stories of experiments you have made in farm work that proved of value to you, and also accounts of unsuccessful experiments that would be a guide for others.

We want Orchard and Farm to be a meeting place of the farmers of the Pacific Coast, where they can exchange experiences and profit by such exchange. Practical farmers everywhere are continually devising some new wrinkle as to cultivation, or irrigation, or fertilization, as well as schemes as to livestock raising. A practical farmer's ingenuity frequently results in the production of an idea of practice as valuable as that evolved by a professor of agriculture.

All of these communications will be saved. The best will be printed, and at the end of a year a committee will pass upon them. This committee will be from the California College of Agriculture, as follows:

John W. Gilmore, Division of Farm Management.
Gordon H. True, Division of Animal Husbandry.
C. L. Roadhouse, Dairy Industry Division.
J. E. Dougherty, Poultry Division.
W. L. Howard, Division of Pomology.
Frederic T. Bioletti, Division of Viticulture.
Frank Adams, Irrigation Division.
H. J. Webber, Director Citrus Experiment Station, Riverside, Cal.

The communication that is regarded by the committee as having proved of the most value will be awarded a prize of $50. The one second in value will receive a prize of $25. The third in value will receive a prize of $15. The fourth, $10, and the fifth in value, $5.

Write to Orchard and Farm as briefly and as clearly as possible, so that there can be no mistake as to your meaning about the original thing you have developed that you regard as having been of the greatest value to you and your farm.

In the Garden

LOS ANGELES is again to the front this year with its war gardens. There has already been planted within the city limits a larger garden acreage than any other municipality in the country had under cultivation last year.

To frighten away birds tie strings across your beds, suspended from stakes. From these strings attach any light material into which feathers may be stuck. The small birds are afraid of larger birds and you can make your scarecrow bird as big as you desire.

Don't lift each spadeful of earth when spading. Take advantage of leverage. This you can do by first digging a trench, say two feet wide, at the end of the plot and maintaining it as you work backward, tumbling the newly spaded earth into it.

Many who plant the "rambler" roses are disappointed with them because of their great tendency to mildew. There are, however, good climbers with foliage that seldom if ever shows a trace of mildew and are also beautiful of flower and vigorous in growth. Among the best are American Pillar, Silver Moon, Dr. W. Van Fleet, Ruby Queen, to which may always be added Thousand Beauties as one of the most desirable.

Tomatoes may be successfully grown on alkali soil, according to J. P. Galeener of Madera, if good sized holes are dug and filled with good soil where each plant is planted. He also claims that less water is required for maturing a crop on alkali soil by this method.

Good garden tools keep up one's courage in gardening. Poor tools make the work harder and impossible as to thoroughness.

A sharp-toothed hoe, with from four to six-inch teeth, is better than a common garden hoe, and it will do better weeding, particularly in heavy soil.

How to Grow Cantaloupes

A SANDY loam with plenty of well-rotted manure incorporated in the soil is well adapted to the production of cantaloupes. The muskmelon is a heat-loving crop, requiring a long growing season, about four months, and cannot be planted until the ground has become warm. For this reason it is useless to attempt to grow it in sections where the growing season is not sufficiently long or where the temperature is not uniform-ly high. The northern portion of the United States is not suited to the growing of this crop for the reasons stated above.

It is advisable to start the plants in berry boxes, or on sods in the hot-bed, transferring these to the open ground after the ground has become warm. In this way considerable time may be saved and much better results obtained. It is a good plan to place plenty of well-rotted manure in the hills, which should be about 6 feet apart. Sufficient seed should be planted so that four good strong plants may be had in each hill. Another plan is to sow in drills in rows over 7 feet apart, thinning the plants until they are from 18 inches to 2 feet apart in the rows.

Cultivation should be frequent and continued until the vines begin to run. This is the only cultivation required to keep weeds down.

Cantaloupes are liable to be attacked by several diseases and have at least one serious insect enemy. For information on the control of insects affecting the cantaloupe see Farmers' Bulletin 856, entitled "Diseases and Insect Enemies of the Home Vegetable Garden."

[illegible] Nevada [illegible] belief that [illegible] before

Pea Vines for Fowls

IN raising garden peas for the canning factories we found the fowls ate their fill of the leaves and young shoots as soon as the peas are out of the ground. Since making this discovery we make it a practice to sow a good patch of peas especially for early feed for the hens. We save feeding grain almost entirely in the early summer until grain is ripe, when there is usually an abundance of waste for them to pick up.

We sow the peas in succession, beginning with the earlier sorts, such as the Gems, and put in Alaska Advance and Admiral Horsford, as we happen to have them. Some of the buds and blossoms will escape and we have the green peas for the table. Any surplus is taken care of by the hens.

The peas are drilled 8 inches to a foot apart and cultivated. They may be sown, as in our field practice, in drills 6 inches apart and do very well without cultivation if the ground is not weedy. It will pay any farmer with a small or a large flock of chickens to try this plan of getting cheap and early feed. The peas may be seeded as soon as the ground is fit and will begin to furnish feed in a couple of weeks and be mature in June, while the succession will last until the new crop of grain is ripe.—D. M. H.

How to Grow Root Crops

ROOT crops are generous feeders of plant food in the soil. The soil in which the root crops are to grow should be deep and mellow, without being very porous. Soils as are adapted to the growing of corn will also grow good mangels. Usually deep fall plowing followed by somewhat shallowed spring plowing should be practiced on heavier soils and a much mellower seed bed will be the result.

The seed of root crops should be planted about three-fourths inch deep. In lighter soils the seed may be planted a little deeper so that necessary moisture is furnished for the sprouting of the seed. The aim should be to bury the seed where there is sufficient moisture, without covering it too deep for the seedlings to break through the soil crust after sprouting. The cultivation should follow as soon as the rows of the different root crops can be plainly seen across the field. Later cultivate to destroy the weeds and to preserve a soil mulch.

Lazy Orchardist's Figs

WITHIN the last few years the Mission fig has proved to be a reliable money maker, but previous to this time there was doubt in the minds of many growers as to the advisability of planting it on a commercial scale. The dark color of the dried fruit and the sugar coating which develops soon after packing make it unattractive for the Eastern consumer, who usually mistakes the sugar for mold. In spite of this, the market has strengthened for this variety, and of late years prices have been good, with a consequent increase in planting. The Mission is a lazy man's fig. After the orchard is once established he need not go near it except to pick up the dried fruit at harvest time and sack it.

The large size to which the Mission fig tree grows necessitates wide planting. No nut tree or other fruit tree requires so much space as this variety of fig. Even though the branches do not touch in old bearing orchards, unless plenty of moisture is present in a loose deep soil, the fruit will be small and the trees will show signs of distress. Several orchards in Solano and Yolo counties testify to this fact. Never plant closer than 48 to 50 feet. Intercroping can well be resorted to in the young fig orchard with no injury to the trees.—J. W. Mills.

U.C. Farm Expert says-

"Wood blocks make a very desirable floor"

Professor J. B. Davidson of the University of California, College of Agriculture, says:

"Wood blocks make a very desirable floor when well laid, either of durable wood or a treated wood, especially for that part of the floor upon which the animal is required to stand. The use of wood blocks obviates to a certain extent the use of a liberal amount of bedding where the animal must lie on the floor. . . . "

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Tractor Problems

Is your tractor giving you any trouble? If so, write to Tractor Editor, Orchard and Farm, Examiner Building, Los Angeles, and a reply will be mailed to you from our expert. If you have no objection both questions and answers will be printed in this department.—The Editor.

Too Much Hostler Work

LIKE everything else, the tractor is not all velvet for the farmer. True, it is hard to take care of a team of horses, to feed and stall them and harness them, but a tractor makes plenty of work too. Can you tell me how to reduce a lot of this tractor drudgery that takes so much time?—J. B. R., Grant's Pass, Ore.

No—sad to say we can't tell you how to get rid of work on a tractor or any other machine. An industrious man will find it to his advantage to do his hostler work at night. It can be done quicker then, for the bearings are warmer after the day's work and they will take the grease more readily. Besides, if you leave this work until morning you may neglect some of it in your haste to get a start in the field.

Hostler work is necessary. It should not be slighted. Adjustments should be made carefully. You can save yourself a lot of time and trouble by not allowing dust and dirt to get into your oil. Put a dust-tight cover over it and see that it is always replaced. Motor bearings of the right type will run a whole season without adjustment if lubrication is attended to properly and all dirt kept out of them.

More About Starting

I HAVE read the answer you gave to the Woodland man about difficulties in starting and their cause. Very fine, Mr. Editor, but you do not tell why these difficulties arise.—O. J. S., Oxnard, Cal.

Chiefly from cold engines. This happens in California, even in the summer time, if you start your tractor early in the morning. Another reason is that the gasoline used is not of good quality. Poor "gas" makes half the starting trouble. Tractor owners should always have handy a few gallons of high-grade gasoline for starting purposes—in fact, the very highest. It should test not less than 70 degrees Baume.

If a tractor operator will put a bucket or two of warm water into the radiator of his tractor just before he wishes to start, he will find it an advantage. This warm water in the water jacket raises the temperature of the cylinders up to a point where it does not have the same condensing and chilling effect upon the vaporized gasoline that it otherwise would have.

Best Oil Costs Most

I DO not agree with you about oils. I find the best oil costs the most money. But what I want to know is how to tell exactly when my machine needs to be oiled.—L. K. T., Visalia, Cal.

You may be right as to high-priced oils. At least, they should be no worse than cheaper grades, though there is much haziness about the whole business. As to your query, we would say that properly oiled working parts always have a thin film of oil between them, which prevents them from running in contact. The kind of oil to use under a given condition is determined by its ability to establish this film between the rubbing parts, and resist being squeezed out by the normal pressure of these parts against each other. It must also be of the proper quality to resist decomposition by the heat.

Main Points About Oil

I AM deeply interested in your tractor problem department and I want to tell you that it is the best in the country. I have learned a lot of valuable things by reading the questions and replies. You place much importance on oiling, but you do not say how to select oil for tractors. Why not print some of the main points about this important subject?—J. McM. P., Red Bluff, Cal.

Thanks for your compliments. An oil for a specific purpose, in order to properly serve as a lubricant, must have the following characteristics:

1. It must be capable of maintaining a thin film of oil between the bearing surfaces.

2. It must be able to withstand the heat developed around the working parts it is meant to lubricate, without burning, decomposing or thinning down too much for lubrication. It must have sufficient body to resist the diluting action of unvaporized kerosene.

3. It must be able to resist being squeezed out from between the surfaces of the moving parts. This applies especially to crank shaft and piston pin bearings.

In the selection of oil for a kerosene tractor cylinder, it is well to bear in mind clearly wherein the kerosene and the low-grade fuel motors differ from the ordinary gasoline motor. It must be remembered that kerosene burns more slowly and imparts more heat to the cylinder and piston than does gasoline. It is necessary also to maintain a somewhat higher temperature for the perfect combustion of kerosene. With this greater heat, an oil must be used that will retain the above lubricating qualities.

Selecting a Tractor

I AM coming back at you again. I don't understand your reluctance about telling me the best kind of tractor for all-around work. Please answer in your Tractor Problem column.—P. O'C., Brawley, Cal.

You would understand our reluctance if you were the editor of a farm journal. What you should do is to attend a tractor demonstration or school and if this is not handy, write to Orchard and Farm advertisers and get their literature. From this you will be able to get a fine idea as to the machine that will meet your requirements.

No Horses on Bean Ranch

LAST spring G. W. Clevenger, a California bean grower, sold his horses and bought a tractor. By an ingenious arrangement in extending his steering and control apparatus to operate the machine from his bean planter and cultivator, he was able to take care of all his early work without horses.

He also pulled his cutter with the tractor. In threshing he trailed the wagons behind his tractor and gathered up six wagon loads at a time. He started the tractor with its procession of wagons down each row and let it run slowly without a driver, as the machine would follow a straight line. He has 220 acres in beans, but got along with only two men. With his four row cultivator he was able to plow 35 acres a day.—Sunset and the Farm.

Low Tractor Cost

The article in the January number of Orchard and Farm on "What the Tractor Actually on the Ranch" attracted much n, and many letters of appre- n have been sent in to this office. To the records of the cost of tractor p may now be added that which attained by A. H Moore of Hunt- , Cal. Mr. Moore bought his tor in October, 1916, and it has n in almost continual use ever e, and yet the total expense for airs in all this time has been less n $1. Mr. Moore, of course, has the best of care of his machine. e says he has used none but the hest grade lubricants in it, and he tributes his low repair expense very gely to the kind of oil and grease has used

On his 400-acre farm near Grange- le, Idaho, C. C. Sherwin has been g a tractor for two years.

"My machine pulls three 14-inch toms," he says, "and I also use for pulling a combine, for road- king, for sawing wood, for stretch- fence, for ditching and for grind- feed. I have also used it for mov- buildings.

My tractor is a 'one-man rig,' s distillate and has made it possi- e to dispense with eight head of es. It has solved the hired-help blem to a great extent, as it can n long hours and requires but one n for plowing where formerly two re required. I find the tractor eaper in every way than farming th horses, and we can get our work ne in season, besides being able to w both deep and fast—a thing im- ssible with horses. We plowed 100 res last fall at a cost of $65."

L. C. Bishop of Greenacres, Wash., d a tractor on his 600-acre farm t season.

I have a 20-35 machine," says Mr. p, "which I operate on distillate. draw six 12-inch plows and I do ariety of other things with it be- s. One man is all that is required run it and it has enabled me to dis- e of 15 head of horses. With one n my tractor does what it would uire three men to do with horses."

Further comparing horse and trac- , Mr. Bishop says:

A good tractor has every advan- e over the horse. It saves on hired p, works untiringly and it does not e to take into account heat or th."

However, he sounds this note of ning:

e farmer who anticipates the hase of a tractor should investi- the various types of machines w igh thoroughly the require- ents of his farm and the ability makes and models he inspects his work Then get a tractor ore rather than less power than els he actually needs and know, some member of his family personally, how to operate it."

Urge Building Activity

Council of National Defense, the Food Administration and e United States Department ulture all urge farm building They hold that farm build- the production of live- the waste of food crops. W Chase, head of Agricul- ngineering of the University , says that farmers may fully 25 per cent more now than they would o years ago. On the t is also seen that most farm products have in- 20 per cent in value. of labor, the in- , the increased to the 20 per cent, how- increased to ing.

Learn How to Stop Your Car

As your initial automobile lesson, after you have learned the names and, above all, the potentialitics of the various levers, learn how to stop. Of course, as a preliminary, you must start, but that can be at your leisure. Make a dozen—or even a hundred—attempts to bring the car to a standstill.

After you have received some instructions about the general mechanism of the car practice stopping suddenly before reaching imaginary dangers along the road. Don't wait for this lesson until a child, a chicken, an absent-minded saunterer or some other irresponsible live thing sends your brand-new knowledge helter-skelter.

Measuring distance accurately is the most important feature of driving. Draw two lines across the road fifty feet apart. Then, going at the rate of twenty miles an hour, apply the brake and see how long it takes you to stop the car.

This trial also teaches you what speed is safe in approaching railroad crossings and intersecting streets, and how near you can go to traffic before applying your brake.

How I Make Victory Bread

Early in the evening I start my bread by putting one rounded tablespoonful of salt, one-half cupful or less of sugar, and about six cupfuls lukewarm water into a bread mixer. To this I add one cake yeast foam, which had been put to soak about an hour before in lukewarm water, to which a teaspoonful of sugar had been added.

I then add one scoopful of wheat flour and one scoopful of milo maize flour, stirring it well into the liquid. I continue adding the white flour and milo maize flour alternately in a fifty-fifty proportion until the mixture becomes a stiff, smooth dough.

Kneading is one of the secrets of success in the use of milo. It requires about twice as much as when white flour alone is used. I then bundle it for the night by filling a bag with hot water and placing it under the mixer, wrapping the mixer, bag and all in a blanket. This coddling is only necessary in cold weather.

In the morning the bread is at the top of the pail. I knead it down again, scraping the sides of the mixer so that all the dough is given a chance to rise and then let it "come up" for the second time. I then knead it into loaves, this quantity making about five medium sized loaves.

When it is made out into the pans I let it rise only about 20 or 30 minutes.

Before placing in the oven I thoroughly grease the top of each loaf, which prevents the formation of a crust that is too hard. In baking, I make the oven as hot as possible for 15 minutes. The bread browns in this length of time; then I turn the flame down until the temperature is moderate, and allow the bread to bake slowly for 45 minutes longer.—Helen M. Layman, Tucson, Ariz.

Raisin Campaign Successful

The California Associated Raisin Company closed its campaign for contract renewals February 2. More than 130,000 acres of producing vineyards were signed up, insuring the success of the industry for another six-year period. The Association Raisin Company operates in the district of which Fresno is the center, and Fresno is its headquarters.

Poultry as a War Winner

The growth of the poultry industry of Tulare County, California, has been phenomenal. The Co-operative Association shipped, last year, eggs to the value of $74,000 and poultry to the value of nearly $25,000. The total output of the industry in Tulare County last year was around $500,000.

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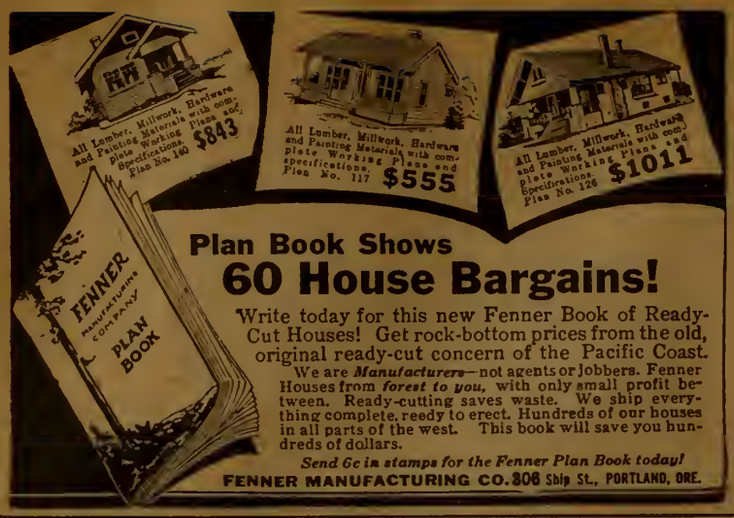

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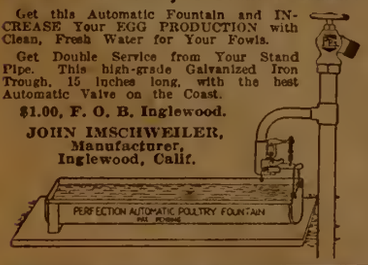

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TOO LATE TO CLASSIFY

ONE HUNDRED AND NINETY ACRES for sale; 5 miles from Watsonville, Santa Cruz County; on main Southern Pacific line; 27 acres standard apples, 10 acres Royal apricots, all in full bearing, balance in grain and general farming, nominal improvements, consisting of dwelling house, barns, outhouses, dryers, trays, etc. The soil is light, rich, sandy loam; numerous springs; the land gently rolling. The place has been neglected owing to absentee owner, who is anxious to sell and has placed the price at a figure far below anything ever heard of in this district. The price is $85 per acre, which is ridiculously low. This land is the best apricot land in the State. There are no frosts and no irrigation necessary. This must be sold. Will you be the one to buy it? Apply to David F. Supple, 240 Montgomery street, San Francisco, Cal.

BABY CHIX AND HATCHING EGGS from our own large, vigorous stock, carefully Hoganized and bred for heavy egg production. Barred Rocks, R. I. Reds, Anconas. 14c; week-old chix, 16c; 2 weeks old, 20c; Leghorns, 12c, 14c, 18c; eggs, $1.50 for 15; $6 for 100. Downey Hatchery, Downey, Cal.

E-Z EGG PRESERVER—A marvelous discovery; keeps eggs strictly fresh ten months in box or basket; tested and approved by leading universities and U. S. Government experimental stations; $1.00 can will preserve 150 dozen eggs. Write for free literature. Household Necessity Company, 2125 Market street, San Francisco.

I NOW OFFER MY SPRING PIGS, sired by Cook's Hancherdale Jones, a grandson of the famous Gertsdale Jones, and out of big prolific sows, the best of the "Big Types." Write for prices and further information. J. H. Cook, Paradise, Cal.

SELECTED EGGS FOR HATCHING from Black Sumatras, Silver Spangled Hamburgs, Buff Orpingtons, $1.00 per dozen. Mammoth bronze turkey eggs, $3 per dozen; discount on quantity—quality guaranteed. J. Wellborn, Warren, Ore.

FERRIS BOURBON RED TURKEYS, non-wandering, quickly maturing; winners at Panama-Pacific, California and Arizona State Fairs, Los Angeles. Eggs, $3 per dozen. Mating list. The Ferris Ranch, R. 2, Box A, Pomona, Cal.

A FEW BIRDS will pay the rent. Ring-neck, Golden and Golden Amherst from unrelated stock. Baby chicks and eggs for sale. Safe arrival guaranteed. Write for prices and information. Grove Pheasantry, Pacific Grove, Cal.

SINGLE COMB Rhode Island Red hatching eggs from heavy laying, thoroughbred stock; $1.50 per 15; chicks, 15c. F. Bruns, Route 1, Box 484, Berkeley, Cal.

This Man Makes Poultry Pay

Over $250 Net a Month From Small Ranch

ON a chicken ranch of ten acres for which he paid $600 an acre, John Edward Moltzer of Van Nuys, Cal., is making over $250 a month net and expects to double that amount next season.

Moltzer is a Hollander. He came to this country in the Ford peace ship in January, 1916, and after traveling about looking for a place to settle down, he chose the San Fernando Valley as against Florida, Virginia and other regions he had visited.

He bought his Van Nuys ranch in the spring of 1916, ordered the construction of a bungalow upon certain plans and went back to Holland for his wife and children. When he returned to California in the winter of 1917 he moved into the completed house, built some chicken sheds, bought 2700 baby chicks from a Van Nuys dealer and started in the chicken game in February

Moltzer had pretty good luck with his chicks. They grew apace and after he had sold his roosters he found himself in possession of 940 pullets—all White Leghorns. They laid eleven eggs on the first day of July and 155 on the last day of that month, the total for the month being 2463.

In August the hens laid 5427 eggs, in September 5405, in October 5858, November 6599, December 8374.

How the Record Was Boosted

Why the big jump from November to December. Well, for one thing Moltzer turned on the electric lights in his hen houses during the latter month. True, he did not turn them on until the 27th, but those five days of "daylight saving" helped a whole lot.

But just wait. In January, 1918, those same hens doubled their December record, laying a total of 16,426 eggs!

Good feed, intelligent care, the kind that makes nothing of midnight toil, together with electric lights, did it.

Moltzer turned on his lights at 3:30 in the morning, burning them about two and a half hours each day. The hens responded nobly to the early call upon their efforts. They got busy and in one day they laid 612 eggs.

The flock numbered by this time about 900, perhaps a few less, but those 900 laid 612 eggs in one day and 16,426 in a month! Can you beat it for just a haphazard lot of White Leghorns?

Electricity must have helped immensely. Moltzer stoutly declares that it did. The highest record for any day preceding the electric lighting of the pens had been only 388, but electricity boosted it to 612.

When February came Moltzer had lost still more hens, but his record was 15,419 and he kept it up to about the same figure in March, for up to the 25th his hens had laid 13,571 eggs.

Income and Expense

Moltzer sold his January eggs for $740.74. His expenses for the flock in that month were as follows

Feed	$172.75
Wages	36.50
Electric light bill	3.75
Shavings for nests	.40
Total	213.40
Sold empty sacks	19.59
Expense for month	$193.81

After deducting the $193.81 from his income from the January eggs, Moltzer had net returns of $546.93 as the result of the month's operation. Since then he has averaged over $250 a month, as the price of eggs has increased and the feed expense has gone a little higher.

But the best part of Moltzer's record is yet to come. On the 10th of March his 900 hens laid 645 eggs. Proud indeed, is the Hollander hen man, for it is a record that rarely has been beaten even in the San Fernando Valley.

Puppies and Pigs

Beside the hens, of which he expects to have 2500 this summer, as he is constantly adding to his flock, Moltzer goes in for Airedale puppies and Berkshire pigs. He raises much of his green feed on his ten acres and as for the rest of the provender well, he is paying whooping big prices like all his hen-raising neighbors.

Moltzer speaks good English, hates the Kaiser, and is going to become an American citizen as fast as Uncle Sam will let him.

Cooling Practice in a 3000-Egg Machine

HORACE RANDALL, a prominent Southern poultryman, who makes a specialty of day-old chicks, writes that he has had the best hatches when he has cooled his eggs thoroughly up to the eighteenth day.

Mr. Randall tells of one occasion when he forgot a trayful of eggs and left them on top of the machine overnight. The eggs had been incubated for ten days and the temperature of the cellar was about 60 degrees. Although he did not expect that any of the eggs would hatch, he put them back into the incubator and on the twenty-first day took off a larger per cent of chicks than usual.

Mr. Randall begins by leaving the eggs out of the machine about 10 minutes early in the season. Later he cools them for a longer time. When warm weather comes he leaves them out of the machine longer than when the weather is cold. This applies to small incubators.

He operates a 3000-egg machine, which necessitates no cooling, owing to the fact that fresh air is constantly entering the egg chamber in considerable quantities.

Fresh air is of vital importance, Mr. Randall believes. When he began hatching he got very poor results and could not understand why until one night his lantern light went out. That showed him that the cellar needed ventilation, for it was plainly lack of oxygen that extinguished the flame. His next move was to put muslin-filled frames into his cellar windows on both sides, opening the glass according to the way the wind was blowing. After that he had no more trouble in getting good hatches.

He has found that moisture is needed if the cellar is not naturally damp or the floors of cement

Tells Why Chicks Die

E. J. Reefer, poultry expert of the Reefer Bldg., Kansas City, Mo. is giving away free a new book which tells of a simple home solution that prevents 98 per cent of all chicks hatched from cures white diarrhoea over night. All poultry raisers should write for this valuable free book.—Adv

The Grange

State Organizer Needed

THE Grange needs a good, live State organizer with the right kind of intelligence and per- ...al magnetism that will command ... attention of his hearers. He ...ould know the principles and the ...sibilities of the Grange from A to ... with the proper command of ...guage to convince others. He ...ou'd be paid enough so he could ...vote his whole time to the work ... have time enough in each com- ...un ty to find out the best, the very ...st, people to put at the head of the ...wly organized Grange, for upon ... depends its success or failure, ...d to do this he must be a good ...dge of men.

To be an organization of much ...wer, we must have instead of about ... Granges, 200 or 300, and there is ... reason whatever why we should ...t have them if we just get up and ... after them in the right way.

But right along with this increase ... numbers, we must develop and ...erfect ways and means for mutually ...enefiting each other. We must ...rovide tangible proof that the ...range is worth while. Our Fire In- ...rance Mutual is a good step in the ...ht direction. But we must do more. ...operative buying and selling are ...ellent things if worked out in the ...t way. Kansas and Oklahoma ... a State buyer for the Grange ... his work along that line is well ...rth our investigation.

Another thing—we should take active ...terest in affairs of State. Mr. Shel- ...y's idea of having an agent at Sac- ...mento to look after the farmer's in- ...ests during the session of the ...gislature is a good one. But prob- ...ly better yet, the legislators them- ...lves should be a goodly number ...m our own ranks. That will be ...sible when we get those 300 ...anges I am dreaming about. Yet I ...tend it is not a dream. I am con- ...ent several Granges could be or- ...nized within a 20-mile radius if we ...d the right kind of an organizer. ...s does not mean disparagement of ...y local deputy, but they are too ...sy and usually not financially able ... devote the proper time to do the ...ing well. And things not done well ...e best not done at all. That is, ...pecially, in organizing new Granges, ... every Grange that becomes dor- ...t casts its shadow on the whole ...anization.—Mrs. Rose Bryant.

Here, There and Elsewhere

...e regular quarterly meeting of ... executive committee of the State ...ge was held at the Argonaut, San ...ncisco, April 2. Reports from ... different departments were very ...rable. E. T. Pettit reported the ...ge Mutual Fire Insurance Com- ... showing substantial gain for the ... quarter. Here is a good oppor- ...y for patrons to co-operate as ... as benefit themselves financially ...tter Valley Grange has recently ...leted additions to its Grange ...rty to the amount of over $1100. ... have a live Grange and a live ...er.

...her live Grange is the one at ..., Siskiyou County, Cal. With ...te topics and speakers and an ...lly open meeting, they are ...h to educate and build up ...n'ty There ought to be ... it

... Grange recently passed a ... so many ... we are ... This ... to con-

Land Profiteers

At Work in Madera County.

EDITOR Orchard and Farm: I note with pleasure that you have aligned yourself with the interests of the people on the land question. One does not have to travel far in certain portions of the San Joaquin Valley to see how unmercifully the homeseeker is exploited in his attempt to get back to the land. In the past two years the writer has had some experience in farming.

Colony promoters in one district of Madera county in advertising their land represented to be alfalfa and bean land, but the prospective farmer has to find out by sad experience the many difficulties with which he has to contend there. Many have made complete failures with beans and will not plant again for the following reasons:

Bird and Rabbit Pests

First, as soon as the beans come up there is a little desert bird that attacks them. In some instances I have known them to take a twenty-acre tract. Then the Jack rabbit must have his toll. If part of your crop reaches the stage where it is safe from the rabbits and birds it has still to run the gauntlet of the hot winds which destroy the bloom. Then in the fall comes the menace of the frost and rain. It is too much of a gamble to risk your money and hard work against all these odds.

In the alfalfa sections of Southern California one irrigation only is required to a cutting, in the Madera section to which I refer it takes from two to three irrigations to each cutting, the extra labor and expense taking the profit off the crop. As to grain only those have made a success who farm large tracts of land and summer fallow.

Outrageous Prices for Poor Land

The grain farmers mostly rent their land, giving one-fourth as rental, as they could not afford to buy hog wallow land at from $150 to $250 an acre that would only produce every other year from six to fifteen sacks per acre. Yet this land, without water, they are selling for from $150 to $250 with six per cent interest on deferred payments.

In the past four years many have failed there, losing all their lives' hard earnings and many more have undertaken the impossible—to pay interest that means $12 per acre rent, with taxes, semi-annual payments and still try to exist.

The empty and deserted shacks and dead trees are a silent testimony to the many brave but hopeless struggles that have been made to own a little piece of land that they could call home in that section.

Unfair to Farmers

In these times is it too much to ask that land profiteering be outlawed and that the State open up the idle land for the common good? Many of our citizens who are trying to get back to the land which is the source of all wealth and do their part in sustaining the nation in this great world crisis are rendered useless to society and themselves by sinking their capital in unproductive land.

I could take you to many places that have been sold at from two to four times, the victims all going away sadder and poorer, if not wiser, while the land company grows richer and more heartless.

RESOR GILHOUSEN.
Glendale, Cal.

While Emerson was a great admirer of the farmer, he knew nothing about the simplest gardening. His son, Charles, said of him that when he tried to use a spade he "dug his leg."

Orchard and Farm has a large circulation among the poultrymen of the Pacific Coast. They look to it for what is essentially new in their line, particularly the Weeks articles published from time to time.

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Here is an exclusive Madewell feature that appeals to every user of Surface Pipe. Seamed inside with perfectly smooth surface. Much stronger than the old-fashioned lapped and riveted seam used by others.

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For the Farm Woman

Edited by Ruth Roberts

Knitting for Nerves

IT HAS been asserted that since the war a new disease has sprung into being—knitter's nerves or something like that, affecting the steady knitters of our country.

Now I do not believe that this is the case—a few more women may have developed nerves but some other cause must have been responsible.

Knitting is a nerve soother, providing a pleasant and untaxing occupation while doing some soldier a kindness, possibly saving his life—that is, if the knitter is at work for her country.

The high school girl that once sat idle until supper was placed upon the table, now busily knits and turns out a pair of socks in two or three afternoons.

Her younger sister who hasn't done any useful sewings since grandma's early girlhood now does the same old knitting after a new pattern.

And all the social gatherings of women, hen parties they were called in tones of derision, by those who didn't attend them, are now little meetings of mercy where the members sew or knit for the sick and suffering on and off the battlefield.

I don't believe there are any nerves that are not improved by this valuable work. If there are any damaged ones they do not live in my neighborhood.

A pair of socks will save a man's life when he comes out of the wet trenches and is enabled to put on a dry pair and his being able to do this is up to you. Yes, you. Are you doing your duty?

Here are directions for knitting a sleeveless sweater and a helmet. Directions for sweater are as follows: The number of hanks required depend on the thickness of the wool so no exact amount can be named. Cast on 72 stitches, knit 2, purl 2 for 4 inches. Knit plain until sweater measures 25 inches (work should be about 18 inches in width) knit 24 stitches; bind off 24 stitches for neck, loose. Knit 24 stitches. Knit 7 ridges on each shoulder (or 14 rows) cast on 24 stitches (opposite those bound off). Knit plain for 21 inches. Purl 2, knit 2 for 4 inches. Sew up sides, leaving 9 inches open for armholes. Make 2 rows single crochet around neck and 1 row single crochet around armholes.

The helmet is made in two parts which are afterwards sewed together. A row is once across the pin; two rows are required to make one ridge. To knit in pattern means to knit as before.

Front of helmet—cast on 48 stitches and knit back and forth for 50 rows (25 ridges). The work should measure 9 inches across and be 6 inches in depth, when laid flat without stretching. Next row, knit 2, purl 2, and repeat to the end of the row.

Repeat this row over and over until the ribbed portion measures 6 inches in depth. On the next row the opening for the face is to be made as follows: Knit in pattern as before for 12 stitches, knit and bind off the next 24 stitches and on the remaining 12 stitches knit in pattern for 12 rows, 2 inches.

The stitches before the opening are to be kept on the pin. The last row will end at the opening.

Fasten off the wool so the work will not rip.

Go back and fasten wool where the binding off was commenced and on the 12 stitches there work 12 rows, as before, keeping the stitches on which the first 12 rows have been worked on the pin. Again the work will end at the opening. Then cast on 24 stitches to replace those bound off, work across the 12 stitches held on the pin. Make 4 more inches in ribbing.

Top of helmet—knit 2, narrow (by knitting 2 stitches together), knit 14, narrow, knit 14, narrow, knit 12. Every other row is to be purled. On the third row knit 2, narrow, knit 13, narrow, knit 13, narrow, knit 11.

Continue to work in this way, narrowing on each knitted row in the three places with one stitch less between narrowings until there are 9 stitches left.

Purl back and then bind off.

Back of helmet—work in the same manner as for front, omitting the face opening. Sew up the side seams, leaving the plain knitting at shoulders open. Strengthen the face opening with a round of single crochet.

And just at present helmets and socks are most needed, but if this war is to last through another winter sweaters will be needed also and no matter what the cost in strength, time or money, or how big the sacrifice we will go on to victory.

So knit, my friends, and forget that you have nerves and save a life that might otherwise perish.

RUTH ROBERTS.

The Dreamers

By Theodosia Garrison.

THE gypsies passed her little gate
She stopped her wheel to see—
A brown-faced pair who walked the road,
Free as the wind is free;
And suddenly her tidy room
A prison seemed to be.

Her shining plates against the walls,
Her sunlit, sanded floor,
The brass-bound wedding chest that held
Her linen's snowy store,
The very wheel whose humming died—
Seemed only chains she bore.

She watched the foot-free gypsies pass;
She never knew or guessed
The wistful dream that drew them close—
The longing in each breast
Some day to know a home like hers,
Wherein their hearts might rest.

Diet Hints for Children

PEOPLE are beginning to realize more every day through the medium of magazines, lectures and physicians, the value of feeding a child the right thing.

From a tiny baby to a child eight years of age, fretfulness, paleness, sleeplessness and many other ails are traced to improper feeding. In fact all through life the diet training of a child will influence their health and happiness.

All that I have to say on this subject I have gathered from the best and highest authorities in child feeding, and this, together with my observations with my own child and those of my friends, makes me very sure that you will make no mistake and will doubtless save yourself many anxious hours by fololwing these hints carefully.

To begin with, the young baby should be breast fed. Entirely for a few months if possible, and if not the child should have one breast feeding a day and as many more as the mother has the health and strength to give, to make up the required number of nursings. These vary according to age.

Just one breast feeding has been known to do away with intestinal trouble when combined with the bottle feedings.

Orange juice may be given at three months, about a teaspoonful a day between feedings. Prune juice at six months. But the juice must be strained through cheese cloth or a very fine sieve, none of the juice globules of the orange must be allowed to pass through the sieve.

At six months a little apple sauce pressed through a sieve and the different kinds of cooked cereals are given more extensively. The cereals are also strained.

I am not going into the details of child feeding but I hoped to call to your attention some things that may have been overlooked.

By two years of age the child has formed habits both in eating and also in choosing of foods, so be sure that the early training is right.

A variety of cereals and vegetables should be given, also cream soups. Do not allow the baby to form a distaste for any food that is good for him.

As a nation we eat far too few vegetables and too much meat, and if a child learns to like and to want all kinds of vegetables, this desire will follow him through life and save many a trip to the doctor and add greatly to his attractiveness as a dinner guest.

Bananas should never be given to a child under six years of age, as it is practicaly impossible to get them ripe and unripe they are very hard to digest and may bring on a serious illness.

When weaning a child from the bottle try giving the orange juice as a substitute for the six o'clock in the morning bottle, the breakfast to follow at seven-thirty.

Beef broth and meat soups are said to be a very poor thing to give a growing child. They contain almost no nourishment and may be refreshing for an hour or so but after that the stomach again craves food. On the other hand the cream soups made from almost any vegetable are very nourishing and pleasing to the appetite.

To make a good cream soup boil the vegetable and press through a sieve. Do not throw away the water in which the vegetable was boiled. Pour it into a bowl and allow it to cool. Then put two tablespoons of butter and two of flour into a saucepan and heat. (It is preferable to allow the butter to melt then add the flour, then the cold vegetable water about one cupful), two tablespoonfuls of the strained vegetable and as much milk as desired.

If the vegetable water is added cold it will not cause the butter and flour to form in lumps.

Sweets such as candy or cake should only be given at the end of a meal.

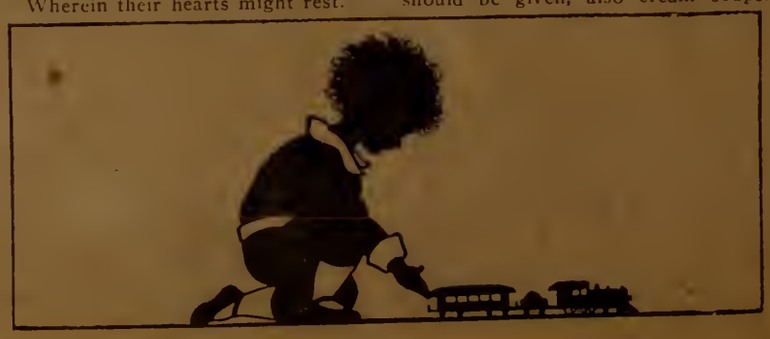
A breakfast of mush and milk is not considered enough for a child going to school. An egg or two slices of bacon should be added.

And lastly do not allow the child to choose his own food. He always will eat almost entirely of the thing he likes best which is often a very unwise food for a growing child.

Remember children do not often the parents' mistakes in the matter of training. A child with a fickle appetite will make just such a grown person often to their undoing, and a young man or woman will not thank you for allowing their youthful indulgences either through laziness, good nature or ignorance, when such indulgence begins or continues show in indigestion or a bad complexion.

Keeping Flowers Fresh

IF A little saltpetre or carbonate of soda be added to the water in which flowers are left standing they can be kept comparatively fresh for more than two weeks. Another method is to add a small amount of ammonium chloride or camphor to the water. The presence of one of these substances stimulates the plant and acts in opposition to germs. Flowers that have wilted can be revived for a time if the stems be inserted in a solution of weak carbonated water.



His Achievements

"That marrying parson has an agricultural habit."

"What is that?"

"I notice he is often engaged in removing widows' weeds."

In 1913, Europe produced 43 per cent of the world's sugar, since then she has had other engagements.

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Without Glasses

Eye Sight. Absolute Eye Comfort

NERVE EN-
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EYE CULTURE.
If you suffer from headaches, eyestrain, weak eyes, burning pains, nausea, or if your eyes trouble you in any way, this wonderful system of eye culture will remedy it. If you wear glasses you can discard them and enjoy such eye comfort as you have never before enjoyed.

MATTHES SYSTEM—cures, for it removes the cause of your trouble.
GLASSES—only relieve, for glasses are crutches and bolster up the eyes.
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We give the biggest value in TEAS of any retail concern in the world. We would be pleased to have you try any of the following:

Uncolored Japan .....44c lb.
Gunpowder .....45c lb.
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Ceylon Orange Pekoe...49c lb.
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400 Stores.
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MEN—WOMEN
PANAMA HATS

For spring and summer wear. Here is an opportunity for you to get your new spring hat at a very low price. Buy direct from Importer and Manufacturer and save half. Write today for illustrated booklet.

Shown in the cut above is a "Four Seasons" Crusher Panama which can be in any shape desired, this is the most comfortable summer hat for either men or women, especially in California. Delivered free by parcel post.

Jim Ballard
Manufacturer Hatter
Broadway, Oakland, Cal.

Helpful Hints

To warm over biscuits, muffins or rolls, sprinkle lightly with water, place pan containing them in pan of hot water and heat in oven for few minutes.

A few cloves added to vegetable soup will give it a delicious flavor.

In boiling corn beef, add a small onion, a piece of ginger, a few cloves and a bay leaf. This will improve the flavor of the beef.

Before heating milk in pan rinse the pan with cold water and it will not scorch so easily.

To freshen shredded cocoanut, soak in sweet milk a few minutes before using.

When cake is too brown or burnt grate with a nutmeg grater until it is a golden brown.

A few whole cloves in the kettle of fat gives doughnuts a nice flavor.

In making fruit cake pour half the batter in the pan before adding the fruit, then the fruit will not settle at the bottom of the cake.

Meat Turnovers

CHOP the meat. If the quantity on hand is small mix with it left over potato or rice. Season with salt, pepper, onion, etc.

Place filling on circular pieces of biscuit dough about the size of a saucer. Fold over the dough and crimp edges together. Bake for about one-half hour in a hot oven. A brown sauce made from two tablespoons of flour browned in two tablespoons of butter or other fat, to which a cupful of water or stock and a half teaspoon of salt is added, may be served with the turnovers.

The Service Flag

DEAR little flag in the window there,
Hung with a tear and a woman's prayer;
Child of Old Glory, born with a star—
Oh, what a wonderful flag you are!

Blue is your star in its field of white,
Dipped in the red that was born of fight;
Born of the blood that our forbears shed
To raise your mother, The Flag, o'erhead.

And now you've come, in this frenzied day,
To speak from a window—to speak and say:
"I am the voice of a soldier son
Gone to be gone till the victory's won.

"I am the flag of The Service, sir;
The flag of his mother—I speak for her
Who stands by my window and waits and fears
But hides from the others her unwept tears.

"I am the flag of the wives who wait
For the safe return of a martial mate,
A mate gone forth where the war god thrives
To save from sacrifice other men's wives.

"I am the flag of the sweethearts true;
The often unthought of—the sisters, too.
I am the flag of a mother's son
And won't come down till the victory's won!"

Dear little flag in the window there,
Hung with a tear and a woman's prayer;
Child of Old Glory, born with a star—
Oh, what a wonderful flag you are!

Sour land will not give maximum yields. Lime will correct the sour condition. It will not pay the immediate returns that manure will, but many soils need it.

One of the many fine values in Durable-DURHAM Hosiery.

"This hosiery gave extra long wear"

THAT is what hundreds of women have written us about Durable-DURHAM Hosiery. It is what you will say when you have tried this splendid, well-made, good-looking hosiery. Now is the time to buy your hosiery with extra care. For every member of the family, big and little, select

DURABLE DURHAM HOSIERY

FOR MEN, WOMEN AND CHILDREN

Made Strongest Where the Wear is Hardest

You know that ordinary hosiery wears out first at heels, toes, knees and about the tops. These are the points where Durable-DURHAM Hosiery is *strongly* reinforced to make it wear resisting. It wears longer because it is specially made to stand more wear. Then the tops are wide and elastic; sizes are correctly marked; legs are full length; feet, soles and toes are smooth, seamless and even; colors are fadeless and stainless.

Attached to every pair of Durable-DURHAM Hosiery is a Durable-DURHAM trade-mark ticket. Ask for this hosiery at your dealer's and look for this label. Prices are 15c, 19c, 25c and 35c pair. Write for a booklet showing all styles of Durable-DURHAM Hosiery with descriptions.

DURHAM HOSIERY MILLS, Durham, N. C.

Amazon

A woman's good everyday stocking. Made from soft, lisle-finish yarn in medium weight. Wide elastic top, strongly reinforced heels and toes.

Price 15c pair

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.

NO ICE REQUIRED EXPENSE TO OPERATE

Hygienic and sanitary, made of galvanized iron

Maintains a low and steady temperature in the warmest climate

Keeps food cool clean and wholesome

Manufactured by
HAMMER-BRAY CO
OAKLAND CALIFORNIA

Ask Your Dealer or Ask Us for Free Booklet C on Cooler Facts.

The Flower Garden

By Mrs. E. E. Paquette

Mrs. Paquette, who is a well-known floral gardening authority of Ventura, Cal., writes exclusively for Orchard and Farm. She will reply to questions addressed to her at 1118 Polli street, Ventura, Cal., if the inquirer will enclose a stamp.—Editor.

Sentiment in the Garden

"I HAVE had shipped to me some of the plants from my old garden in Nebraska. The plants are not doing as well as some others that were in the garden here, but I love them because they came from my old home. I had a nice garden there. And now that my children are all grown they say I should not be so sentimental—but the plants seem to bring back their childhood to me. Will my lilacs and pinies ever do any good here? Or must I take them out?"—A Mother.

"A Mother." How much that means. I am sure you are a mother of boys, and that you did have a nice garden. You would work hard in the mornings to get the work all done up neatly, and to send your children off to school, and get the dinner on for your husband and the hired man, and then you would hurry out to your nice garden. I am sure there was a big, big lilac bush on one side the path, and you would have to bend your head when you passed it. You had sods cut in big long slabs from the blue grass lot for walks between the beds, and the beds were raised and the soil held in place with the sods.

And there was a wonderful bush of Harrison yellow roses in one corner, and another corner was filled with long graceful branches of bridal wreath, and your peonies, or "pinies." Great thick clumps of them, weren't they? And long, stiff stems, each topped with a monstrous red, white or pink bloom as big as a cabbage. And your flowering almonds! Could anything on earth be more dainty or fairylike?

And there was a big clump of bleeding hearts, and hidden away in one corner was a thick mat of lilies of the valley; and didn't you have the most gorgeous tiger lilies?

By the fence next to the big road you had great, tall hollyhocks that would bend and nod a greeting to all that passed, and there were your cherished blush and damask roses, and over the gateway was your big climbing bush of Baltimore Belle. Along the pathway you had a row of spice pinks. And oh, Little Mother, what comfort and mental strength you got from that garden.

Do not take out your lilac and "pinies." They grow slowly—and must be petted here—but they are a bit of your babies' childhood, and nothing is worth having without some sentiment. No song, picture, story, garden or life but is flat and tasteless without sentiment.

Answers to Questions

"Some years ago I saw a plant or vine—I am not sure which it was—in an old garden with a creamy tinted flower, and I think there was a tinge of pink or lavender. Have forgotten the name but think it was commonly called the snail flower. Is there such a plant? And where can I get it?"

The phaseolus caracalla is commonly called "Snail Vine." I presume that is what you mean. It has creamy white flowers with shadings of lavender, and as they grow older the flowers change to yellow. It is a good climber and you may obtain plants from nurserymen in Los Angeles. Send stamp for addresses.

"Is there more than one kind of real ivy? If so, what is the difference?

The botanical name of ivy is hedera, and there are three varieties. Helix chrysocarpa is a three-lobed, cut-leaved ivy; it is very distinct in form from the common English ivy. Then there is a varigated ivy, similar to the English ivy excepting in color. The leaves are prettily varigated with white and green; and then the common English ivy with its thick glossy leaves and clinging rootlets.

"One of my friends has a shrub she calls a jasmine. I thought all jasmines were vines. Is this a real jasmine or has it been mis-named?"

The Maid of Orleans is a jasmine. It has double creamy white flowers, and has the same sweet fragrance of most jasmines, and is a shrub. It is very satisfactory and does best in a partly shaded position.

"Will you tell us plainly what is meant by annuals, bi-ennials, pre-ennials, etc.; also what is meant by so many seedsmen by 'hardy' and 'half-hardy' in their descriptions of plants?"

An annual is one that will bloom this year if planted this year. A bi-ennial is one that has to be planted this year to bloom next year, and then dies after blooming. Here in California many bi-ennials will bloom the first year if planted quite early.

Perennials are those plants that when once established will come up and bloom every year. Snap dragons are often classed in both annuals and perennials, as they will bloom the first year after planting from seed. And under favorable conditions will die down and come up again the next year. The Shirley poppy is an annual while the oriental and California poppies are both perennials. Golden glow is perennial, as are the larkspur, canterbury bells, gail lardia, hollyhock and foxglove, while cosmos, zinnia, marigolds, etc. are annuals.

"Tender" means plants that can stand no frost at all. "Half-hardy" means plants that will stand just a little frost and "Hardy" plants are those that will stand freezing.

You should keep tender plants in the greenhouse or hot bed until May comes, or all danger of frost is over. Half-hardy plants may be planted out in March or April.

"I am late getting to my garden, but I want some flowers. What can I plant in May?"

If you can get the bulbs you may still plant dahlias and gladolius. You may make a late sowing of sweet peas, cosmos, coreopsis, candytuft, centurea, poppies and scabiosa. And you may get the small plants of pansies, asters, snapdragons, gail lardias and canterbury bells.

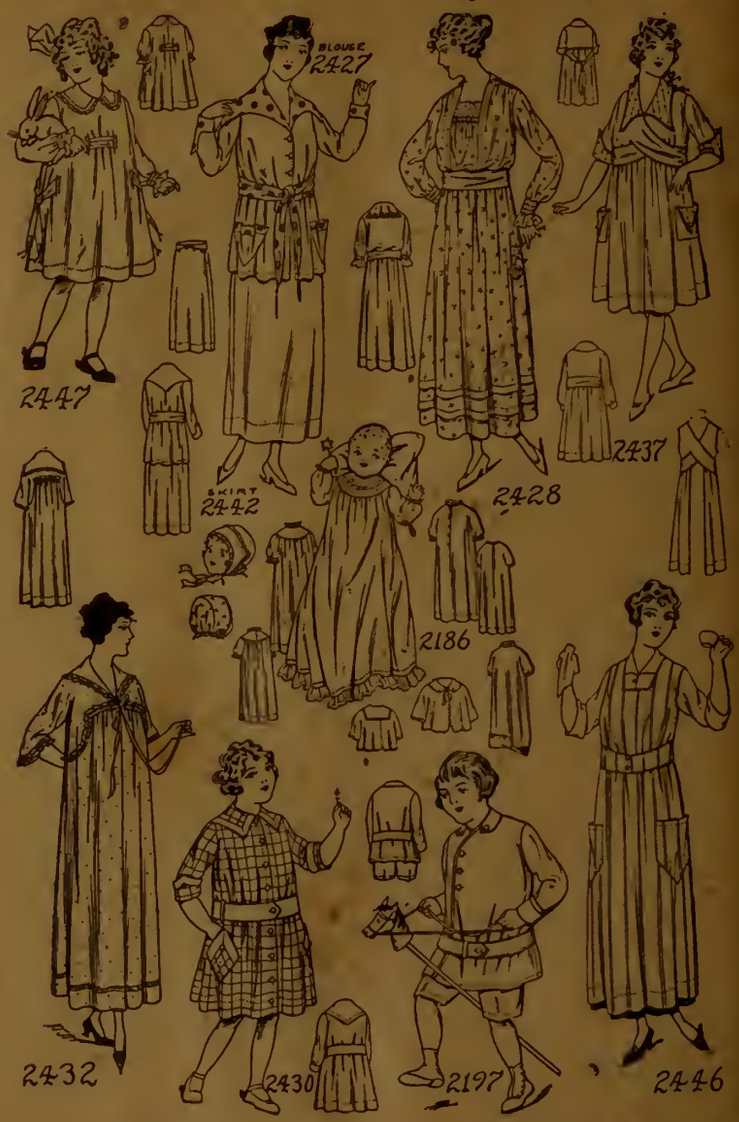
It is just a little late for the small plants of chrysanthemums, but if you can get the plants or divisions they will have plenty of time to make a good growth. Plant cyclomen, begonias and ferns in the fern beds.

"Every one tells me that my pot plants need feeding. I am just a little afraid of the commercial fertilizers and hate to use the plain manure. Will you tell me how to make and use the liquid manure, and will it be good for my plants?"

Liquid manure is one of the best of foods for pot plants or any plant where you do not want to use the coarser manure. To make it, simply take a barley sack, half fill with manure and hang it in a barrel, fill the barrel with water and it will be ready for use after 24 hours. Pour the liquid manure around the plants just as you would water when watering them. Be careful not to use too much, although I find the soil in pots will hardly hold enough to burn if used in the proportion I have stated. You may put more water in the barrel after using the first barrelful.

Pretty Costumes

Selected by Ruth Roberts.



2447—Girls' Dress.
Cut in 4 sizes: 2, 4, 6 and 8 years. Size 6 requires 2¾ yards of 36-inch material. Price, 10 cents.

2427-2442—Ladies' Costume.
Blouse 2427 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 4 yards of 36-inch material. Skirt 2442 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. Size 24 will require 2⅝ yards of 44-inch material. The skirt measures 1⅞ yards at the foot. TWO separate patterns, 10 cents FOR EACH pattern.

2428—Ladies' Dress.
Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 5½ yards of 40-inch material. The skirt measures about 2 yards at its lower edge. Price, 10 cents.

2437—Girls' Dress.
Cut in 5 sizes: 6, 8, 10, 12 and 14 years. Size 8 requires 3¼ yards of 44-inch material. Price, 10 cents.

2432—A Pretty Negligee.
Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A medium size will require 6½ yards of 36-inch material. Price, 10 cents.

2430—Girls' Dress.
Cut in 5 sizes: 2, 4, 6, 8 and 10 years. Size 8 requires 4 yards of 27-inch material. Price, 10 cents.

2197—Boys' Suit.
Cut in 4 sizes: 2, 3, 4 and 5 years. Size 4 will require 3¼ yards of 36-inch material. Price, 10 cents.

2446—Ladies' Apron.
Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. Size Medium requires 4¾ yards of 36-inch material. Price, 10 cents.

2186—Infants' Set.
Cut in one size: For the dress of flouncing it will require 1¾ yards of 36-inch material with 1¼ yards of plain material for yoke and sleeves. Of nainsook or lawn 36 inches wide it will require 2¼ yards. The gown will require 2½ yards of 24 [illegible] 27-inch material. The cap ½ yard of 1[illegible] inch material. The sack requires ⅞ yard of 27-inch material. Price, 10 cents.

Catalogue Notice.

Send 10c in silver or stamps for our up-to-date spring and summer 1917-1918 catalogue, containing 550 designs of ladies', misses' and children's patterns, a complete and comprehensive article on dressmaking, also some points for the needle, including thirty of the various simple stitches, all valuable hints to the home dressmaker.

Use Coupon in Ordering Pattern

Herewith find.... .. .cents for which send me the following patterns:

Pattern No..... ..... Size ...

Pattern No. .... Size ...

Pattern No. ... . Size. ...

Be sure to give number and size. Send money for patterns to ORCHARD AND FARM, "Examiner" Building Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below.

Knit Two Socks at Once

THE art of knitting two socks at once—one inside the other—has recently been introduced into this country from Europe and is exciting much interest among Red Cross workers, says Popular Mechanics. Two, instead of one, balls of yarn are required, but the regular number of needles is used, stitches being taken with each thread alternately. The outer sock is made wrong side out, while the inner one is knit in the regular way.

System on Ranch

(Continued from Page 7)

thing in stock from the foundations to roof, shingling and at prices that no one can afford to overlook at the present time.

This stock in trade is taken from houses which are being torn down to make way for larger and more modern structures, and one is able to purchase fixtures and material of excellent quality at very low prices. Hardwood floors, for instance, may be purchased at a much lower price that the original buyer paid, which would probably mean a saving of half on the prices of today.

All the fixtures necessary for plumbing and heating are on display by these firms and quite often the visitor finds these articles of a quality that would be far beyond his means to purchase if the goods were being sold as new. Doors and casings, windows, beautifully carved mantels of marble and wood, are a few of the things which can be obtained in this way.

A Deceptive Farm Income

FARMERS often fool themselves as to their actual net incomes. They have been finding this out of late while making up their income tax returns. One San Joaquin Valley rancher who never had kept close accounts before, but who thought he was doing a good business on his ranch, though wondering where his money all went to, discovered that his expenditures in 1917 were over $160 greater than his net cash receipts that year.

The farmer mentioned had a labor income, or net for his own labor, of $3363.32, which is several times the average before the war. This is after all farm expenses and $495.89 representing 5 per cent interest on owned capital were counted out. The $495.89, being interest on capital owned free of debt, was not actually expended. The net farm income was therefore the labor income of $3363.32, plus $495.89, the sum earned by the farmer's capital, or $3859.21. Such an income, without any further analysis, would seem to place the farmer in a very opulent position. An analysis of the $3859.21 net farm income mentioned showed the following:

Net cash from farm business, $2425.71.
Spent net cash:

Living	$ 818.63
Costs	1672.50
	$2491.13
Bond	100.00
	$2591.13

Net capital increase, $1433.50.
Distribution of increase:

For feed	$1255.00
Bond	100.00
Stock inc	78.50
	$1433.50

It will be seen from these figures that only $2425.71 of the $3859.21 was available cash. This cash was used for the family living, to pay on a mortgage, and to buy a Liberty bond. The total of these three expenditures was $2591.13 or $165.42 greater than the net cash returns from that year's business, which means the farmer drew on his last year's savings to that extent.

The increase of $1433.50 in capital was almost altogether the increase in farm land, and this increase was partly due to increased prices as the increase in quantity was small. The largest part of the total income, or almost one third of it was of necessity reinvested or carried over to handle business on the place. The $1255 part of the income is therefore necessarily invested in a holding that has a greater security than the strength of a joint market and could, in the following year, become an equal loss. This farmer did exceptionally well last year for his size of business. Farmers in many sections had a very prosperous year. Even with fair prosperity, however, it is seen from the above figures that the farming business that is being built up and enlarged calls for heavy reinvestments that do not leave available for personal expenditure such a sum as an outsider might expect.

To Make Fruit Salads

THE avocado has several delightful possibilities as a salad. With pimiertos to give zest to the somewhat flavorless fruit, and a French dressing, made with lemon or sour orange juice instead of vinegar, it is very good. But it by no means follows that our own American pears, fresh or canned, with oranges or grapefruit to give an acid, masked with the inevitable mayonnaise, and served with cheese and biscuits, is also good. Yet this ranks high among American fruit salads, although the basis is too sweet and too rich.

A fruit salad should always be simple in composition, sub-acid in flavor, and made of fruits compatible with the distinctive dressing of oil and acid. Not all fruits are this. For example, the pineapple, the banana, the pear, the peach, and most plums, are too heavy and sweet, while the honey-dew and Casaba melons, like our own cantaloupes, are too delicate in flavor to bear any addition. A really good example of fruit salad is a grapefruit, with sour oranges, on hearts of lettuce, with a French dressing preferably, though the mayonnaise is admissible if cheese is not served with the dish. No cheese, not even little cream cheeses, should be served with a mayonnaise dressing.

As to the addition of dried and candied fruits and other so-called "goodies" to the American fruit salad, the fastidious eater will have none of these, and the more elaborate the combination becomes with cheese and nuts, the more impertinent it is. Salads of lettuce or watercress or raw cabbage, on the other hand, are delicious when chopped, roasted and salted nuts are scattered through them. But these salads should be served as a separate course.

Finally, the salad is the ingenue of the menu card. Whether it be of herbs or fruits, at present the American fruit salad has the faults of youth.

To Prevent Tomato Blight

ONE of the most effective means of controlling tomato blight is the use of other crops in rotation with tomatoes. As the parasite is unable to live on other crops, it is obliged to exist saprophytically; that is, living on dead or decaying organic matter, in competition with other fungi. This does not entirely eliminate it, but greatly reduces it in quantity. To prevent its accumulation, tomatoes should not be grown on the same land oftener than once in four or five years.

The breeding of blight-resistant varieties is the most hopeful means of controlling this disease. Some preliminary tests of resistance are now being made with a view of developing a resistant variety, but every grower should also make selections for himself. Select from a badly infested part of the field only the plants that are free from the disease, and plant the seed of each selection in a separate row or plat. Determine the relative merits of the selections from the average disease resistance and yield and quality of fruit of their progeny. Do not mix selections nor save seed from any but the one that transmits the most desirable qualities to its progeny. When this is found multiply it and use it as seed for the field crop.

$1 WORTH DAHLIAS 25c

DO YOU KNOW

We are the largest Dahlia growers on the Pacific Coast. We have originated many new varieties that are now recognized all over the United States. We grow some 700 varieties of the world's best varieties. Our soil and climate produce bulbs of the very best quality. Because you may not be acquainted with these facts

We are now practically giving away thousands of high grade dahlias

just to introduce them to all lovers of these grand flowers. That is why we make the following genuine offer of

4 Dahlias for 25c
Postpaid

To be our selection of 25c varieties, chosen from those described in our catalog as follows: 1 Peony Dahlia, 1 Cactus Dahlia, 1 Show Dahlia, 1 Decorative Dahlia. No two of the same color in one collection and all good healthy bulbs with good eyes. We will mail these 4 bulbs, worth $1.00, for 25c postpaid. Here is a splendid chance to test out the four main classes of Dahlias and the quality of the kinds we are sending out will surprise you when you see them bloom.

We make this offer because we believe the best way we can advertise is to

LET THE DAHLIA TALK Send for our 64-page catalog of seeds, dahlias and perennials.

GILL BROS. SEED CO., R. F. D. 1 Portland, Oregon

FRENCHGLOSS

Is a Finishing Article for Home Use

It is used either with Starch or by itself for Soft Finish Garments.

Its use gives all garments a smooth, pliable, lustrous wearing finish, that will keep fresh and clean from 1-3 to ½ longer than garments laundered without it.

It can be used on silk, woolen and cotton garments.

Every article of wear benefits from its use.

Try it on stockings, undergarments, ribbons, men's shirts, waists, laces, collars, chiffons—in fact, any cloth garment is benefited by its use.

FRENCHGLOSS, Carnation odor, placed in closet or trunk keeps moths away.

You will find your ironing much easier and more satisfactory in every way when using FRENCHGLOSS.

When used for starched garments you can save ¾ of the amount of starch ordinarily used, besides having better looking clothes.

You will also find that when garments have once been laundered with FRENCHGLOSS they wash much easier. The reason for this is that FRENCHGLOSS keeps dirt from working into the garment.

FRENCHGLOSS prevents garments from mildewing. This also prolongs the life of the garment.

If you boil your clothes, try dropping a couple of FRENCHGLOSS tablets in the boiler. It will surprise you the good it does.

FRENCHGLOSS is sold on a money-back offer; if not pleased with results your grocer will return your money. Price, 10 cents for a package large enough for six large family washings. By mail, if your grocer does not keep it.

FRENCHGLOSS CO. 1157 E. 12th St., Oakland, Cal.

A Continuous Chain of Boiling Points

—gives easy starting, quick and smooth acceleration, power and mileage, in Red Crown gasoline.

STANDARD OIL COMPANY (California)

RED CROWN GASOLINE

The Gasoline of Quality

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.

FARMERS' CLASSIFIED MARKET PLACE

Our rate for classified advertisements on the Market Place pages is 3 cents per word for each insertion. Advertisements must reach us before the 23d of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

REAL ESTATE

Potato and Bean Farmers Lands That Can Be Irrigated Mean Success in Dry Years

Here's your chance to share in the enormous profits that are going to be made on California lands that can be irrigated this year.

WE FURNISH THE LAND and give you a chance to pay for it from your crops. Many of our farmers the past season have harvested crops of potatoes, beans and barley that will more than pay for the land they are grown on this year. Call and let us show you how our land will pay for itself in a short time, although you have 10 years. Good school, cheap water, good town. Write or call today. 724 Title Insurance Bldg., Los Angeles.

EL DORADO COUNTY RANCH—640 acres, all under fence; 100 acres summer fallow, seeded to grain, looking fine; 300 acres under cultivation; 5 acres orchard; 2 sets of buildings, houses 8 rooms each; barns and outbuildings; all farming machinery, self-binder, mowers, plows, harrows, wagons, blacksmith shop and tools, 4 work horses, 10 head of cattle; 5 good wells; county road runs through place. A bargain, $30 per acre; terms on part; may consider small place in trade; no lease. Deal direct with owner. Address Box 810, Orchard and Farm, Examiner Bldg., Los Angeles, Cal.

EIGHT-ACRE SANVINA RANCH for sale, near Sebastopol, one-eighth of a mile from Petaluma and Santa Rosa electric R. R. shipping station; 4 acres in full bearing bleckberries, 3 acres loganberries, 800 full bearing assorted fruit trees, 5-room house, good water, barn, 6 chicken houses, chickens, cow, 2 horses, 2 wagons; all in good condition; very reasonable. For particulars write owner, F. J. Bulla, Sebastopol, R. 3, Box 149.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Texas.

MODEL POULTRY FARM—White Leghorn Specialists. Established 1903. We are now booking orders for May and June delivery of baby chicks and hatching eggs from our bred-to-lay stock. We still have a few 10-weeks-old pullets to sell. Our prices are right. W. C. Smith, Prop., Corning, Cal.

FOR SALE—A fine five-acre eight-year Valencia orange grove, in Orange county frostless belt. Deep soil, piped for water and good crop. Six-room bungalow, all conveniences, and garage. A dandy income home which can be bought right. G. W. HYDE, Anaheim, Cal.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information address A. J. Smith, Groveland, Tuolumne County, California.

BUY, SELL OR TRADE farms, city property and merchandise stocks. Give full particulars and tell me what you have and what you want. D. J. Forbes, 153½ Grand Ave., Portland, Ore.

FOR SALE—Stock ranch, Northern California, 320 acres; 159 in cultivation, 290 tillable; open range. Six-room house, large barn, furniture, stock and tools included. S. E. Hummel, Tecnor, Cal.

STOCK RANCH FOR SALE—Sixty acres alfalfa, ninety pasture and grain land; good buildings, ditch, water well, lots shade. Fine house in Los Angeles for exchange. Geo. R. Wilson, Fresno, Cal.

315-ACRE FOOTHILL RANCH FOR SALE for the mortgage, $5,750; terms if desired. 2½ miles out from Murrieta, Riverside county, Cal. Write O. K. DEPARTMENT STORE, McKittrick, Cal.

FOR SALE—My $1050 equity in 20 acres dairy land tract for $300; will take good cow or Ford in good condition as part payment. A. F. Rice, Chowchilla, Cal.

40 ACRES in Mendocino County; new buildings, creek and springs; sandy loam, level near schools and towns; $2,600 cash. H. Koenig, Fort Bragg, Cal.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

BARGAINS—Bargains, farms, unimproved lands and exchanges. Send for free magazine. Western Sales Agency, Minneapolis, Minn.

GOOD HOG OR DAIRY RANCH—200 acres; 70 acres alfalfa land; good buildings, running water; near town. M. Funk, Etna Mills, Cal.

OWNER OF 860-A. mountain ranch desires tenant on shares; stock and equipment on place. F. B. Plent, Boulder Creek, Cal.

REAL ESTATE

NO PAYMENT DOWN.

FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS," AT ORLAND, CAL.; WATER FURNISHED BY UNCLE SAM; WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS; NO BETTER SOIL FOR ALFALFA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET. "ORLAND FARMS."
F. D. BURR CO.,
219 MONTGOMERY ST.,
SAN FRANCISCO, CAL.

FOR SALE—Very large stock ranch (others), prune orchards alfalfa land. Fred W. Willson, Phone 95S, Gilroy, Cal.

TEN ACRES FOR SALE—6 miles from Porterville, Cal. This is fine olive land. Address A. O. Hasiehurt, Bakersfield, Cal.

REAL ESTATE—Sale or Exchange

ALFALFA RANCH—30 acres, located alit section, Madera County, best part San Joaquin valley; about 20 acres in alfalfa, balance fine for beans, corn, trees or vines; 3 wells, pumping plant, unlimited water; 2 houses, large barn; ¼ mile from school, 3 miles from state highway. My equity $2,500; will sell it for $2,000, balance very easy terms; or will trade for smaller property. J. W. Weeks, Roseville, Cal., Box 277.

FOR SALE—OR EXCHANGE—CHOICE paying almond orchard near electric railway, between Marysville and Live Oak; 22 acres bearing trees 18 grain. Will grow alfalfa or orchard; $16,000; terms. Might accept Orange county or grain ranch in exchange. E. W. HAUCK, Fullerton, Cal.

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EXCHANGE—Improved farm in New York, near Cornell University; 100 acres, good large house, 3 barns, spring and brook water. Price $4000. Will exchange for California and give or take. Has government loan of $1600. W. O. Foote, 570 Madison st., Watsonville, Cal.

60 ACRES—Unimproved; on Gulf Coast; citrus, fruit and pecan belt; running water; mild winters. Desire to exchange for unimproved in citrus section of California. Send trades. Oscar Elder, Oakdale, Perry County, Ind.

WE EXCHANGE Real Estate—Johnson & Temple, San Jose, Cal.

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20-ACRE FRUIT FARM at a bargain; situated 1 mile from Ukiah, fronting on State highway; good house, excellent barn and tank; 4 acres full bearing Bartlett pears; 4 acres full bearing prunes; balance planted to barley, tomatoes and corn; all level; excellent soil; price $7500; terms to suit. Address P. H. Andersen, owner, Albion, Cal.

40 ACRES OF FRUIT OR ALFALFA LAND —6 miles from Hanford, on county highway. House, barn and fenced; water right; 1 mile from good school; price $8700; $5500 down, balance long time, low interest, or will exchange for 20 acres improved, near good town. C. E. Greeley, R. D. A., Box 170, Hanford, Cal.

FARMS WANTED

IN EVERY COMMUNITY there is someone that wants to change. Write me the description, price and mortgage of what you have to exchange for a grain, stock or dairy ranch in Glen County. F. J. Austin, Willows, Cal.

WANTED—SMALL RANCH or city property; pay for same with 160 Oregon land; suitable wheat and other crops; price $4,000; mortgage $1000. Frank E. Jones, 1015 7th st., San Diego, Cal.

WANTED—To hear from owner of good ranch for sale. State cash price, full description. D. E. Bush, Minneapolis, Minn.

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

ORANGE AND LEMON GROVES

ORANGE AND LEMON GROVE.

For sale—20 acres 4-year-old Eureka lemons and 10 acres 5-year-old oranges and lemons. Lots of water. Nothing finer in Los Angeles county. Will be a big crop this season. Must sell. No agents. No exchanges.

Address C. W. MOUNT,
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MISCELLANEOUS

FARMER, YOU MUST PAY INCOME TAX

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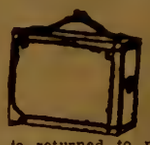

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Takes pictures 2¼x3¼. Sell 30 envelopes fast selling American Flag stickers at 10 cents each. Camera sent when $3 received is returned to me. Take back all unsold goods. Send no money. Write today to The Boys & Girls Friend, Box 661, San Bernardino, Cal.

HOROSCOPES scientifically written. Your marriage, best business, probable health shown. Write for terms, giving time of writing. Robt. R. Hill, 2188 Sutter St., San Francisco.

NEW AND SIMPLE PROCESS FOR THE CRYSTALIZING OF ALL FRUITS. INSTRUCTIONS. CORRESPONDENCE SOLICITED. MRS. H. B. MONTEITH, 415 COLLEGE AVE., SANTA ROSA, CAL.

SUPERIOR TAMALES—Save wheat for our soldiers. Eat enchiladas, tortillas. Superior Tamales, 73 Card Alley, San Francisco, Cal.

I WILL DELIVER a small box of lemons for $1.00, containing 4 dozen; prepaid to any part of the U. S. Ernest Vince, Santa Barbara, Cal.

AGENTS, SALESMEN—Wanted

WANTED—SALESMEN FOR BIG SALES and big business; men with sufficient capital and business ability to swing the exclusive agency of an entire county. We control the sale for the United States of the only coal oil gas burner that does not form carbon or soot, fits any cook stove or heater, produces a perfect fuel for any purpose at 2 cents an hour. Write to GAENZLE & McKIM, 226 Mercantile place, Los Angeles, Cal.

WANTED—SOLICITOR FOR COUNTRY WORK. NEEDS MOTORCYCLE OR SMALL AUTO. GOOD SALARY AND COMMISSION TO THE RIGHT PARTY. A CARD WILL BRING FULL DETAILS. ADDRESS ORCHARD AND FARM, EXAMINER BLDG., LOS ANGELES, CAL.

BE YOUR OWN BOSS. Work out in the fresh air and sunshine and make good wages. An opening for the right party with small auto or motorcycle. Address Orchard and Farm, Examiner Bldg., Los Angeles, Cal.

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NEW opening April 29, 300,000 acres moist Agricultural Oregon Railroad land, adjoining California. Get County Maps, Jackson, Josephine, Douglas and Curry, $2.50 each, and get land held fifty years by railroad, adjoining improved land. Worth $16,000 per 160.

California County sectional maps, showing Government land, $2.50, any county. Joseph Clark, Sacramento.

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ANY AMOUNT ON COUNTRY PROPERTY. Bank rates. Write for particulars. We specialize on large country loans.
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LIBERAL LOANS and fair rates on good country property, any amount, small, medium or large (none is too large). Write exact location, amount and full particulars to Geo. W. Austin, 1538 Broadway, Oakland, Cal.

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PATENTS that protect are secured through us; established fifty years. Send for free booklet on "Patents." Pacific Coast Patent Agency, Inc., Stockton, California.

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GOLD, amalgam, rich ore bought, cash; assaying, 50c. Pioneer Assaying Company, 636 Market St., opposite Palace Hotel, San Francisco, Cal.

WANTED—CANNED MEATS, VEGETABLES, FRUITS, JAMS, etc. Submit samples, quantity and best prices. Can use at once following: Canned tomatoes and pie raspberries and fruits, every kind; walnuts, peanuts, buckwheat, beans every kind; rye, rice and flour and all grains. Submit what you have, with stamp for return answer. GIVE US FACTS ONLY. Ernest R. Fair Co., Buyers' Agents, offices 517 and 519 Grant Bldg., Los Angeles, Cal. Established 1906; references exchanged.

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$5 A DAY GATHERING EVERGREENS roots and herbs. 10c brings book and war prices. Particulars free. Botanical, 60 New Haven, Conn.

ALL KINDS second-hand harness. Buggy, $10; cart, $4; good condition. D. Hurton, Mission and 8th sts., San Francisco, Cal.

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WHY ALLOW NOXIOUS WEEDS AND GRASS TO GROW?

KIL-WEED

Will Eradicate Them

Conserve the Plant Food They Use

One Gallon Trial Order $2.50

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Do You Iron Today?

If so, keep cool! Use the Imperial self-heating Iron. Makes its own gas, generated from kerosene. The cheapest and best iron made. Gole Lite & Sales Co. Lamp Dept., 1216 to 1220 E. 41st st., Los Angeles, Cal. Demonstration room, 246 S. Spring St.

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A. LEVIN, successor to Kelly Machinery Co. All kinds and sizes of Pipe, Engines, Boilers, Pulleys, Shafting, etc. Good second-hand Wire Rope, Manila Rope and Barb Wire. 524 Mission Road, Los Angeles.

THOROUGHBRED dogs, cats, singing canaries for sale. Prize dogs and cats at stud. Prices reasonable. Sanitary Boarding Kennels, 4028 Grove st., Piedmont 760, Oakland, Cal.

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SPECIAL PRICES ON SECOND-HAND stoves, machinery, tools, chain, tanks, pipe cut shaped to order; plumbing supplies, furniture. NOAH'S ARK, 609 East First, Los Angeles.

ALL KINDS second hand harness. Buggy, $10; cart, $5, bulldog, $15. Thoroughbred. D. Hurton, Mission and 8th sts., San Francisco.

SPLIT REDWOOD POSTS
Any size, any quantity. Write for prices.
W. E. Whitmore, Cloverdale, Cal.

MISCELLANEOUS—Wanted

OLD FALSE TEETH WANTED. The older the better. We pay up to $20 per set. Cash sent by return mail. Mail to G. Randolph, Hearst Bldg., San Francisco.

FARMERS' CLASSIFIED MARKET PLACE—Continued

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HALF PRICE EGG SALE!

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Baby and old HATCHING EGGS. Thousands every week. Utility or prize Leghorns, Anconas, Reds, Rocks, Wyandottes, Minorcas, Orpingtons, Ducks, Geese, Turkeys from 200-290 egg strains. Surprisingly low. Laying pullets, hens, reasonable. MALES HALF PRICE. Many customers making money. One cleared $617 on 110 hens, another $59 on 10 last year.
W. BEESON,
143 North Chester Ave., Pasadena, Cal.

BABY CHICKS—
BABY DUCKS—
BABY GEESE—
BABY TURKEYS—
All popular varieties.
Our chicks are supplied by experienced hatchers and reliable breeders. A dependable supply of the very best. We ship everywhere.
Specialists in high-class poultry, pigeons, bantams, ducks, geese, turkeys, Guineas, pheasants, peafowl, rabbits, dogs, cats, Guinea pigs, canaries, parrots and pets of all kinds. Our facilities and experience enable us to supply most any requirement. Correspondence invited.
We buy, sell and exchange.
EVERYTHING IN HAIR, FUR AND FEATHERS.
FANCIERS' EXCHANGE,
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WE ARE OFFERING SEVERAL BARGAINS IN POULTRY PUBLICATIONS WITH RENEWAL SUBSCRIPTIONS TO ORCHARD AND FARM. AS AN EXAMPLE—ONE YEAR'S SUBSCRIPTION TO THE CALIFORNIA POULTRY JOURNAL, INCLUDING YOUR RENEWAL TO ORCHARD AND FARM, FOR ONLY 75c. NOTE THE LARGE AD ON ANOTHER PAGE. ORCHARD AND FARM, EXAMINER BLDG., LOS ANGELES, CAL.

FINEST HATCHERY IN THE WORLD—Baby chicks, Rhode Island Reds and White Leghorns, settings, 100, 1000 hatched right in our $60,000 brick and concrete hatchery from our quality heavy layers; reasonable prices; stock hatching eggs. Pebbleside Poultry Farm, Sunnyvale, California.

FOR SALE—We guarantee full count of live chicks that will please you. We hatch from heavy layers selected by the Hogan system. Thoroughbred White Leghorns exclusively. Reasonable prices. Write for price list and book your order early. White Leghorn Hatchery Co., Pomona, Cal.

WHITE LEGHORN CHICKS—Not too late to order now for March and April hatches, but don't delay. For best utility stock, the kind noted for their superior egg-laying qualities, from Carl Stange, Poultry Ranch and Hatchery, 1408 Silver ave., San Francisco, Cal.

FOR SALE—Guaranteed all pullets, day old. Demand never so great as this year owing to high cost of feed. Raise only producers. The greatest hatchery on earth. Established 1912. Eureka Hatchery, 3406 South Vermont, Los Angeles, Cal.

AMERICA'S FINEST BREED, THE Single Comb White Minorca; hatching eggs and baby chicks. Madison Square Garden stock. LEECH POULTRY YARDS, 1170 West 37th place, Los Angeles, Cal.

THE NORTHWEST POULTRY JOURNAL AND ORCHARD AND FARM, BOTH FOR ONE YEAR, ONLY $1.00. YOU SAVE 25c. ORCHARD AND FARM, EXAMINER BLDG. LOS ANGELES, CAL.

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[illegible]RES JUBILEE HATCHERY and poultry yards. S. C. White Leghorn baby chicks from our yards of 1800 breeders; choice [illegible]ks and cockerels for sale. Address H. L. [illegible]own, Ceres, Cal.

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[illegible]TMAN'S Bred-to-Lay" Hoganized, trapnested Barred Plymouth Rocks. [illegible] CHICKS. Eggs. Fairmead Poultry [illegible], Fairmead, Cal.

[illegible]Y CHICKS White Leghorn and R. I. [illegible] hatches every week, any quantity [illegible] chicks sent. Write for prices. [illegible] Campbell, Cal.

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POULTRY

VODDEN'S BARRED PLYMOUTH ROCKS

Winners at California's leading shows and wonderful layers. If it's Barred Rocks you want, get in touch with me right away. I have bred them exclusively for twenty years. Yes, we are booking orders for hatching eggs, which will start you right. Catalog free.
Vodden's Rockery,
Los Gatos, Cal.

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New breed on the Pacific Coast. Very fine line of strong egg producers. Line-bred, very vigorous, mature early; fine winter layers. Catalog and mating list free. Hatching eggs, $2 for 15, $8 for 100. Prices on trios and pens on request. Pine Grove Ranch, Route 1, Redondo Beach, Cal.

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FOR SALE—300,000 S. C. White Leghorn chicks during April, May and June; heaviest laying Hoganized stock only. Broilers in ten weeks; pullets lay at five months. We guarantee safe arrival of all chicks to destination; you pay only for chicks received in good condition. Shipped safely anywhere west of the Rockies. Price, $10 per 100; $95 per 1000. No money in advance; pay on delivery. Finest hatchery in the world. Established over twenty years. Must Hatch Incubator Co., 405 Seventh st., Petaluma, Cal.

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WHITE CRESTED BLACK POLISH and Golden Laced Polish exclusively. Home of quality and beauty. Write me your wants for the show room and breeding pen. Eggs, $2.00 for 15; $3.50 for 30. Mark Cutts, Dundee, Minn.

BARRED PLYMOUTH ROCKS, bred from all first prize winners for past six years. Eggs, $3, 15 eggs. Exhibition cockerel, bred pen headed by $60 cockerel. A. D. Easton, Bellview Poultry Ranch, 1164 Bellview ave., Los Angeles, Cal.

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S. C. R. I. EGGS, $1.50 setting. Hewitt & Hewitt, Dixon, Cal.

POULTRY

BABY CHICKS

Anconas, $16 per 100; Barred Rocks, $17.50; Black Minorcas, $17.50; Brown Leghorns, $14; Buff Leghorns, $15; Rhode Island Reds, $16; White Minorcas, $19; White Orpingtons No. 1, $30; Quality White Leghorns, $12.
Order direct from these prices.

D. E. DOKE

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CHIX—Buff, Brown and White Leghorns (Barron Strain), Anconas, Minorcas, Barred Rocks, Reds, Orpingtons and Silver Campines. Enoch Crews, Seabright, Cal.

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200 EGG STRAIN Pure White Indian Runner Ducks. I am now taking orders for eggs for hatching for immediate delivery. No baby ducks or old stock for sale. Prices $2 per 12 eggs; $3.50 per 25 eggs; $6.50 per 50 eggs. F. W. McCauley, El Portal, Cal.

DUCK EGGS FOR HATCHING, from White Muscovy, White Indian Runners and Black Muscovies, 10 cents each.
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WHITE HOLLAND TURKEY EGGS, $3.00 per dozen. Satisfaction guaranteed. A. W. Wilson, 1289 E. Grand Ave., Pomona.

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—BIRDLAND—

The long-expected birds from Australia have arrived in fine shape. In this shipment we received the wonderful Lady Goulds, Diamond, Gold and other pretty finches. We can right now show the best selection of song and aviary birds of all kinds; also ornamental land and water fowl, monkeys, etc. Chameleons and small turtles are also here and we have some good gold and fancy fish, globes, cages, food remedies and all other accessories.

—TALKING PARROTS—

Some of all kinds and of the best grades to select from; every bird guaranteed.

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Our dog department at 216 Mercantile place offers a nice lot of puppies of different breeds; also a full line of kennel supplies and all the standard foods and remedies.
Illustrated catalogue free to those interested.
L. M. GRIDER,
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SUNSET Glow Collie Kennels pups for sale. G. R. Sears, Creswell, Ore.

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DORAN'S GAPE REMEDY—Guaranteed to cure or money back, 25c postpaid. Literature free. Agents wanted. Box 117, Brandenburg, Ky.

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GUARANTEE GARDEN GOOD THINGS—For that "War Garden" of yours. Something "Different," yet intensely practical. GIANT MARROW CABBAGE double yields Kales, both richer and hardier, trunk solid "MARROW," not total waste, like Kale's; richest egg, rabbit, dairy, table "greens" grown; (see full description December issue); only GUARANTEED, PEDIGREED seed supply (limited)—some plants ten feet high, yard long leaves, half as wide; 500 such seeds, 25c; five packets, $1; 13-acre supply, $2; photos, suggestions, FREE. "GOLDEN POTLATCH" or "Full Dinner" (bush) Pea; sweetest, tenderest, greenest; "Canning" UNNECESSARY; well-soaked RIPE SEEDS, properly cooked, just as good; only Coast supply (limited). Packets, 10c; dozen, $1. (Detailed description page 21, March issue). NORTHERN FROST-RESISTING BEANS. Give astonishing crops further south. "EARLY-RIPE STRINGLESS BUSH WAX"—perfect "Canner," richest flavored "Drys." "F AVA," gigantic, frost-proof, best soil enricher (bush). "SCARLET RUNNERS," immature pods give EARLIEST "STRINGS." Packets, 10c, all three, 25c. "PURPLE PERFECTION" POTATO—(see detailed description page 37, April issue) — demands CONTINUOUS GROWTH, assuring two prolific crops yearly for Californians; frost-proof salad specialty. Avoids "holdover" worries; sample, 10c, pound, 35c, ten-pound lots, $2.50. EVERYTHING PREPAID by E. E. MARTIN, Guaranteeing Seedsman, B 4, Bangor, Washington. NEVER RISK UNGUARANTEED SEEDS, FELLOW FARMERS.

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"SCIENTIFIC FUR FARMING." A profitable, spare-time business, good for $1500 per year and more. RAISE STOCK FOR US—We buy all you raise. We pay you the highest market prices and furnish perfect breeding stock. GO INTO BUSINESS FOR YOURSELF. Our booklet and details mailed for 10 cents.
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Los Angeles, California.

CALDWELL'S RELIABLE RABBIT REMEDIES, sold under a guarantee to CURE or money refunded. Caldwell's Snuffle Remedy, 75c; Caldwell's Ear Canker Remedy, 35c; Caldwell's Slobber Remedy, 35c; Caldwell's Rabbit Tonic, 65c. Free list of other remedies and supplies. Caldwell's Rabbit Farm, 2526 San Fernando Blvd., Los Angeles.

LET A SUCCESSFUL MAN TELL YOU HOW. "The Twentieth Century Rabbit Guide," by E. A. Samuelson, a rabbit breeder for 12 years, most certainly does supply the practical points you need. Good illustrations. SATISFIES. Price 50c. Free circular. Sanford's Rabbit Farm, 3732 Midvale, Oakland, Cal.

INCREASE RABBIT PROFITS by raising furbearing stock. Five species from Warren of Originator. Twelve-page illustrated, descriptive and greatly reduced price list for stamp. This ad. will not appear again. Trouslot, Furbearing Rabbit Broker, Walnut Creek, Cal.

SELL US YOUR NEW ZEALAND RABBITS—We are in the market at all times for healthy, utility New Zealand Rabbits, weighing 5 pounds or more, and pay as high as $5 each for them. Send for buying price list. Gilmore Rabbit Farm, Santa Barbara, Cal.

PIGEONS—BUY BIG BIRDS. Homers, Carneaux, White Kings; 15 to 20 lbs. squab a year per pair. E. B. Julian, 1506 O st., Sacramento, Cal.

CARNEAUX PIGEONS—Buy a few pair of breeders that produce more fat squabs than the average. Investigate now. Riverside Squabry, Riverside, Cal.

ARMSTRONG'S NEW ZEALAND RED RABBITS—Some grand young stock ready for May and June delivery; prices right. Armstrong's Rabbit Yards, Petaluma, Cal.

RABBITS—Choice young New Zealand red does for sale. R. C. Specht, R. R. A., Sonoma, Cal.

MONEY IN RABBITS. Raise rabbits for us. Will pay $6 per pair. Send stamp for reply. H. E. Gibson Co., Arcadia, Cal.

MEDICAL

LADY DOCTOR

AUGUSTA STONE, M. D.,
Physician and Surgeon,
534 SECURITY BLDG.,
Cor. 5th and Spring sts., Los Angeles, Cal.
Phones—Main 6396, Wilshire 891.
Can accommodate a few patients in her private home.
Office hours, 10 to 5, except Saturdays, and Sundays by appointment only.

CONSTIPATION cured without drugs; new book, price 5c. Liberty Company, Station D, Box 4007, Cleveland, Ohio.

CHIROPRACTIC COLLEGES

BE A CHIROPRACTIC DOCTOR—7000 now practicing; new method of curing and preventing diseases. Catalogue free. Dr. Charles A. Gale, President, Los Angeles College of Chiropractic, 931 South Hill St., Los Angeles, Cal.

LAW SCHOOLS

STUDY LAW AT HOME—Leading two-year law school, announces a special home study course by mail. Reasonable tuition. Terms. Free text books. For information, Los Angeles School of Law, Merchants' Trust Building, Los Angeles.

PARCEL POST

CO-OPERATION (NOT OPERATED FOR PROFIT) reduces living expenses. Particulars and catalog from Co-Operative League, Commercial St., San Francisco.

COLLECTION AGENCIES

KNOX—Spreckels Bldg., San Francisco. Debts collected everywhere; no charge unless successful.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.

FARMERS' MARKET PLACE

FARM TRACTORS, MACHINERY

Auto Starters and Generators. Relay Cutouts and Magnetos.
We repair any style or make. Fully equipped machine shop to repair or construct anything mechanical or electrical. Just send it to
M. C. BAKER & SON, Inc.
686 Mission St., San Francisco, Cal.

IDEAL HOIST FOR UNLOADING HAY, driving fence posts, stretching fences, erecting buildings, and numerous other purposes around the farm. Inexpensive, great labor saver. Send for pamphlet. U. S. IRON WORKS, SEATTLE, WASH.

FOR SALE—We have several slightly used two-row corn and bean planters. Greatly reduced price. Write quick for price and circular. ARNOTT & CO., 112 S. Los Angeles st., Los Angeles.

U. S. LAND CLEARING OUTFITS; pulls your stumps, piles them for burning, levels the land. Can also be used for many other purposes around the farm. Send for booklet. U. S. Iron Works, Seattle, Wash.

WE buy and sell machinery of all kinds, including motors, generators, pumps, tractors, other farm equipment; write for prices. M. C. Baker & Son, 686 Mission, San Fran.

FOR SALE—Bull tractors on time payments. Will exchange for good dairy cows. P. J. Weisel & Co., Anaheim, Cal.

AUTO TIRES

YOUR FORD WILL USE HALF COAL OIL OR ALL DISTILLATE if you use our 1918 carburetor; 34 miles per gallon guaranteed. One-third more power. Use cheapest gasoline or one-half kerosene. Quickly starts cold motor even at zero and moves right off with full power. No spitting or popping. Slow speed on high. Fits exactly. Attach it yourself; 30 off list where no agent Big profits selling our goods We fit all motors. Write for 30-day trial offer and money-back guarantee The Air-Friction Carburetor Company, 325 Madison St., Dayton, Ohio.

AUTO ACCESSORIES, SUPPLIES

PERFECTOR for FORD MOTOR oiling system. New invention. Saves ¼ to ½ the oil, less carbon. Less spark plug trouble. Motor runs smoother. Installed in a few minutes without raising hood. No changes whatever in motor or any adjustments. Fifty cents, postpaid. Inducements to accessory dealers and garages. Perfector Manufacturing Co., 412 West 6th st., Los Angeles, Cal.

FORDS CAN BURN HALF COAL OIL, ALL DISTILLATE, or Cheapest Gasoline, using our 1918 Carburetor; 34 miles per gallon guaranteed. Easy starting. Great power increase. Attach it yourself. Big profit selling for us. 30 days' trial. Money back guarantee. Styles to fit any automobile. Air-Friction Carburetor Company, 325 Madison st., Dayton, Ohio.

AUTO TRAILERS

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES, SAMPLES and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.,
The Yellow Front. Established 1892.
112-118 South Los Angeles St.,
Los Angeles, Cal.

ENGINES

SEVERAL NEW AND SLIGHTLY USED ENGINES. ARNOTT & CO., Implements, 112 South Los Angeles st., Los Angeles.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 23rd of the month.

NURSERY TREES AND PLANTS

100,000 SOUR ORANGE SEED, bed trees, 50,000 sweet. Choice new stock; trees lined out next spring, sure to hit a high market. Better plant at least a few thousand. East Colorado st. and Berkeley ave., Pasadena, Cal. Southland Nurseries.

CLOSING OUT—15,000 choice orange and lemon trees for sale. Marsh seedless grapefruit, Eureka lemons, Washington navels and Valencias. Two-year-old buds, 30 cents each, or in hundred lots, 25 cents. F. A. Anderson, Elsinore, Cal.

BEST CITRUS TREES grown from the best buds, from the best bearing trees in the famous East Whittier district. Thousands for 1918 planting. R. R. Morris, R. F. D. 1, Whittier, Cal.

SWEET POTATO PLANTS—New varieties sweet potato plants; Nancy Hall, Porto Rico. Early Triumph, $7.50 per thousand, $1.00 per hundred. April and May delivery. J. BRASWELL, Lindsay, Cal.

PLANT RHUBARB NOW—12 plants furnish all sauce and pies for big family free; 8 plants, $1; one acre has produced $1100 first year. A. M. Jones, 1253 Cahuenga street, Hollywood, Cal.

RHUBARB—$1127 from one acre. A crop every month of the year. Write to me and I will tell you how you can do as well. J. M. Stone, Lodi, Cal. Route 4.

FIELD SEEDS, GARDEN STOCK

ALFALFA PLANTERS, get this booklet, "Important Facts About Alfalfa Seed; the Prospective Alfalfa Growers Should Know." Read it before purchasing your alfalfa seed. It will save you money and insure you better seed. We handle all varieties of alfalfa seed and can supply you with seed best suited to your conditons. Write today for free booklet, samples and prices, describing your soil and moisture conditions. Bomberger Seed Co., Desk F, Modesto, Cal.

ALFALFA SEED—We have been growing and distributing this seed for forty years. We make it a specialty, both retail and wholesale. Tell us the nature of your soil and we will do the rest. Write for samples, prices, etc. V. A Peterson Alfalfa Seed Co., Arbuckle, Cal. Make our seed your seed.

SEED GRAIN, THRESHING Machine and Harvester Screenings Wanted—Cash paid for large or small quantities. Mail samples on which we will quote. Mercantile & Warehouse Co., Fifth and Poplar Sts., Oakland, Cal.

FOR SALE—Pure bred red dwarf milo maize for seed; yields 3 tons per acre. Price, 50 lbs. and over, 5c per lb.; ton lots on application. Chas. I. Long, Route 1, Orland, Cal.

LIVESTOCK—Chester Whites

THE BILLIKEN BRAND OF CHESTER WHITES. The 1918 output of swine will be very small. There never was a time in the history of the swine industry when the future outlook was as encouraging as it is at present. Get into the business and get in right. Get started with this mellow, easy feeding type. I am offering for immediate delivery a few young sows bred to farrow in May, their second litters, some nice spring gilts bred to farrow in June. Fall pigs—both sexes. Write for booklet and prices. C. B. Cunningham, Mills, Sacramento County, Cal.

LIVESTOCK—Poland Chinas

MAKE BIG MONEY. You can, even at present price of grain, if you have our famous Whitten Ranch Poland-Chinas—the mammoth, prolific, fast-growing, easy-feeding kind. Special sale of weaned pigs, many sired by our great $1000 Jumbo Model. Prices reasonable; satisfaction guaranteed, everything immune. Send for free illustrated booklet, "Hogs for Profit." Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 519C Marsh-Strong Bldg., Los Angeles.

REGISTERED Poland-China swine, weanling pigs of both sexes. J. H. Cook, Paradise, Cal.

HEWITT'S BIG TYPE POLAND CHINAS—Bred sows and gilts. Hewitt & Hewitt, Dixon, Cal.

LIVESTOCK—Duroc Jerseys

DUROC-JERSEY HOGS of guaranteed breeding. Pigs, $15 up; sired by State Fair prize winner. H. E. Boudler, Napa.

LIVESTOCK—Guernseys

FOR SALE—Registered Guernsey bull calves. Prices and terms very reasonable. Elmdale Guernsey Farm, P. J. Weisel, Santa Fe Springs, Cal.

LIVESTOCK—Sheep, Milch Goats.

TOGGENBURG MILCH GOATS—Rae P. Williams, Federal Realty Building, Oakland, Cal.

TOGGENBURG GOATS—Edwin Pritchett, Mojave, Cal. Enclose stamp.

Beans Are Bullets

REALIZING that beans are among the best kind of bullets to fight a foreign foe, the ranchers of California are putting forth mighty efforts to beat their wonderful record of last season. They produced 8,035,000 bushels of beans in 1917, or a little over 51 per cent of the 15,701,000 raised in the United States.

Of course the bean men are not doing their work for glory. Many of them became rich from last season's crop, and it looks as though they would get still richer this year. But they are not looking at their industry purely from the standpoint of the profiteer—a farmer rarely does. If he did, he wouldn't be a farmer.

May is a good time to plant beans in California, generally speaking, though they may be seeded as late as July. One woman in Fresno county did not plant her beans until August last year and yet harvested 80 sacks to the acre.

Buy your seed from reliable seed dealers if possible. Should this supply be exhausted, the beans sold at stores for cooking purposes can be drawn upon. First buy a small amount, or secure a sample for germination. Test between blotters, and if the test shows eighty-five per cent germination or better they will be safe.

Best Soil for Beans

A sandy loam is best for beans. In many places the soil may be too fertile, causing over luxuriant growth of vines so that the plants bloom but sparingly and but little seed sets. Bottom lands are not adapted to bean growing for this reason, and also because of diseases, some of which are more prevalent under conditions where heavy dews and lack of air drainage are found as on such lands. For this reason a location is to be preferred where there is good air drainage. Newly turned sod may be used for beans with good results. Such land is apt to be a little dry, which tends to check vine growth.

The land should be prepared early in the spring, because if this is deferred until planting time much of the moisture which should be conserved for the summer period will have been lost by evaporation or used by weeds. The seedbed should be prepared after plowing and followed at occasional intervals with the harrow. This will kill the young weeds and conserve the moisture. In this way much of the weed fighting can be done before the crop is planted. From eighteen to twenty quarts of pea beans are required per acre. Larger varieties require more seed, ranging from the quantities named, to one bushel per acre for the larger, according to sizes.

The bean is distinctly a warm season crop and should not be planted until the soil becomes thoroughly warmed. If planted too early the seed is likely to rot in a cold soil and will not germinate uniformly, making uneven ripening. The vine growth is more likely to be excessive than when planted later and checked by the hot, dry weather. The first half of May is ample time for planting shell beans in California.

Irrigation Increases Yield

Except in low, moist land bean crops are considerably increased by one or two irrigations.

Unlike most plants, the bean brings its seed leaves to the surface when germinating. If planted too deeply, this is made difficult. On the other hand, a crop planted shallow may suffer from moisture. From one and one-half to two inches is a good average depth. For a small acreage a hand drill is satisfactory, the rows being commonly spaced twenty-eight to thirty inches apart, with the plants about two inches apart in the row. In field planting a corn planter with bean plates is the most desirable. A grain drill with a portion of the openings stopped may also be used. The crop is sometimes planted in hills, using five to seven seed in the hill. Experiments indicate that the drilled crops yield the heavier.

A final harrowing may be given just before the seed comes up. Level cultivation should be practiced after planting. The bean is a shallow rooted plant, hence care must be exercised to avoid injury by cultivating too deep near the plant. Following the appearance of the blossoms, and after the vines begin to run, cultivation should be done at less frequent intervals, except in case of severe drouth. This has a tendency to check vine growth and to encourage seed production. Beans should not be cultivated when the foliage is wet because it has a tendency to encourage anthracnose. A one-horse cultivator or a two-row truck crop cultivator are excellent tools for this work. A surface corn cultivator can also be adjusted to this purpose. The crop should be harvested as soon as the pods mature and before they begin to shell.

How to Treat Burns

IN ANSWER to the New York Medical Journal's question: "How do you treat burns?" the first prize was awarded to Dr. T. J. Tuder of Keokee, Va. Dr. Tuder explains the different treatments for burns of different characters.

Severe burns are always accompanied by shock, he says, and the shock has to be treated by deadening the pain with morphine, used with extreme caution and omitted entirely in children, while stimulants should be administered at appropriate intervals. The patient is wrapped in warm blankets, hot water bottles are applied to the unburned parts and pillows are removed from under his head.

The burned area is cleansed with warm diluted carbolic acid; a moist compress of neutral solution of chlorinated soda is applied for about ten minutes; or, if there is much dirt or grease in the wound, 0.5 per cent iodine in benzine. To relieve pain the burned part may be immersed in a saturated solution of bicarbonate of soda, or covered with gauze kept wet with the solution or with a paste made by adding boiled water to the bicarbonate of soda.

How I Feed Calves

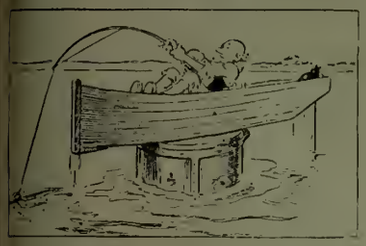
HERE is the way I feed calves in order to get the best results:

My calves are allowed to nurse the dam for a day or two and then are taught to drink from a pail It is best to give them whole milk for a week or so. For best results about three and one-half pounds of milk at blood heat should be fed three times a day. After one week the calf may be fed twice a day and it will do very well to begin to substitute the skimmed milk for the whole milk about this time. Do this gradually a little at a time, and at the age of three weeks the whole milk may be entirely taken away. A small proportion of flaxseed gruel should be added as the whole milk is taken away After three weeks something cheaper may be substituted.

A calf at one month's age will consume seven quarts of skimmed milk, while after three months this amount may be increased to ten quarts per day. If at the proper season of the year, the calf may be allowed to nibble at the tender grasses after reaching the age of four weeks. At other seasons a little hay should be given, so it will learn to eat. Ground grain should also be available. Summer calves should have the run of an orchard or other enclosure where there is plenty of shade. They should also have a shed for shelter during inclement weather.—C. H. C.

Sunflowers

Biggest One Gets Away



Oh!

"Say, Dad, do aeroplanes fight in the war zone?"

"No, my son, they fight in the ozone."

Not to Be Disconcerted

Two young ladies on the promenade of an English seaside resort had been watching the vessels pass, through a telescope lent them by an ancient mariner. On handing the glass back one of them remarked that it was a very good one.

"Yes, miss," said the old tar, "that telescope was given me by Lord Nelson."

"Mercy, man! Why, Lord Nelson has been dead for more than a hundred years!"

"Well, I'm blowed," remarked the salty one, quite unabashed, "'ow the time do fly!"

He Wanted to Know

Officer: Now, Private Jenkins, I am going to give you a very responsible job. Under our advanced trench is a large mine. I want you to stay there, and when the mine goes up I want you to blow this whistle. Now, do you clearly understand?

Private Jenkins: Well, there's one thing I'm not certain of, sir. When do I blow the whistle—going up or coming down?

Playing Safe

It was late when they returned from the theater.

"Won't you come in for a little while, Ted, dear?" she asked.

"No-o, I think not," replied Ted, hesitatingly.

"I wish you would," the girl continued, "it's awfully lonesome. Mother is away for the night and father is upstairs groaning with rheumatism in the legs."

"Which leg?" asked Ted.

"Both legs," said she.

"Then," said he, "I'll come in."

Truth Comes Out

"I shall never forget," said the major, who was in a reminiscent mood, "the first time I ever drew a sword."

"Where was that?" asked the casual acquaintance.

"At a raffle," answered the major.

Essential

The novice was not enjoying his first trip through the air and his more experienced companion regarded him in some amusement.

"I say, Bill, what's on your mind?" he demanded.

"I was just thinking about Abraham Lincoln," replied Bill thoughtfully.

"Abraham Lincoln?"

"Yes. I was thinking how truthfully he spoke when he said a man's legs ought to be just long enough to reach the ground."

Costly Croaking

"Uncle, can you make a noise like a frog?" inquired little Johnny.

"No, why?" asks Uncle.

"Why, pa says when you croak we will get ten thousand dollars."

But He Had Two

"Are both those horses yours?" asked Benny, a precocious six-year-old, of the minister, when he drove up behind a prancing pair of bays.

"Sure," replied the dominie. "Why?"

"Oh, nothing," answered Benny, "but pa said we had only a one-horse preacher."

Circus Time

"Sure we kin do that trick, Willie—all we need is a girl to toss."
"Let's get Lizzie Jones—I never did like her."

Bouquets Without Strings

Extracts From Appreciative Letters.

IT IS springtime and the ranchers are busy, but they're not quite too busy to sit down and write to Orchard and Farm and give it a word of cheer. The letters from which these extracts are taken are very heartening and uplifting and we wish that we deserved all the praise they contain.—The Editor.

Hits the Nail on the Head.

Have just read your March number. It is very interesting. In your economic articles you hit the nail square on the head. More power to you! Also more and more of your good honest articles that raise confidence in old California, the real queen of our nation.—E. M. B., Irwin, Cal.

Best of Its Kind.

We at home here consider your paper the best of its kind in the field.—A. V. Schroeder, End-of-the-Trail Ranch, Santa Margarita, Cal.

Want to Shake Hands.

All we can say after reading Orchard and Farm is—good for you! Wish we could reach across the miles and shake hands with you. So many editors give no sign but that they are living in the stone hatchet age that we are glad you are living and writing today.—Mr. and Mrs. William Hughes, Hillsboro, Ore.

Fresh and Strong

I congratulate Orchard and Farm on its stand on economic problems. I get a good deal from it that is fresh and strong.—Elmore Chase, Horticultural Inspector, Fair Oaks, Cal.

The Farmer's Friend.

I like Orchard and Farm. It suits me the best of any farm journal I know. It is the farmer's friend.—Henry Murphy, Milo, Cal.

From a Grange Leader

I think the March number of Orchard and Farm the best ever, and I am glad to hear of its increased circulation. It should be in every rural home.—K. D. Hill, California State Grange Lecturer, Eldridge, Cal.

From An Agricultural Expert.

I am reading your paper and find it a very valuable asset to my work here.—E. Clay Shouss, Paso Robles, Cal.

Fascinating and Instructive

Orchard and Farm is bright, newsy, fascinating and especially instructive. I like it very much.—O. P. Osborn, R. 4, Porterville, Cal.

It Tells the Truth

I am glad to see that the editor of Orchard and Farm is big and strong enough to tell the truth about land conditions and economic problems. Oh, that we had more of such editors as you!—Mrs. Florence Hopkins, Red Bluff, Cal.

From Another Farming Expert.

The remarkable and choice contents of your publication as well as the material of its book, "Practical Farming and Gardening," are worthy of appreciative comment.—W. R. Mitchell, Los Angeles, Cal.

A Montana Appreciation.

I have taken your excellent farm and home paper for four years and like it very much, especially your articles on land subjects.—Austin D. Perry, Box 453, Helena, Mont.

Gives Mr. Smith Pleasure.

Each number of Orchard and Farm is received and read with pleasure. To read in your articles what California should be and then to realize what it is makes a man's heart ache.—Henry C. Smith, Santa Cruz, Cal.

The Least Blameworthy.

I like your paper. It is the least blameworthy.—Isaac Van Horn, Salida, Cal.

No Ranch Complete Without It.

In my opinion Orchard and Farm is the best publication on the Pacific Coast. No ranch is complete without your wonderful journal.—Fred W. Wallraff, Route A, Box 125, Placerville, Cal.

Best on the Coast.

I consider your paper one of the very best farm papers I know of—certainly the best on the coast.—W. A. Lee, Covina, Cal.

In Touch With the Big Things.

What I like about your paper is that it is in touch with the big things being done by the big people. It is not filled up with a lot of swivel-chair stuff by men nobody knows about. If these big men think your paper is worth writing for it is worth reading. I hope it will keep up its standard, at least for the next six years that I have subscribed for.—J. Oscar Know, Davis, Cal.

They Read It Closely.

Within the last few days I have received letters from men saying that they saw an article in Orchard and Farm about the Western Walnut Association and asking for information about walnut culture. As secretary of the association I wish to thank you for the notice and also let you know that your readers must read the paper very closely. Today I had a letter from a man in Seattle, yesterday one from Lodi, and a few days ago one from a man in Utah, so evidently you have a wide circulation.—H. V. Meade, Orenco, Ore.

A Great Help to Them.

Your paper is a great help to us. We farmers need all the help we can get in these times. Your premium book, "Practical Farming," is fine. I would not be without it.—J. B. Osborn, Flournoy, Cal.

FROM OUR ADVERTISERS

Great Results

Please keep right on running my ad in the Orchard and Farm. It certainly gets me great results. To tell you the truth, I run an ad in seven papers, and Orchard and Farm gets me more live buyers than all of the other papers put together.—Dan Charles, White Rock Specialist, 2228 San Antonia Ave., Alameda, Cal.

From the Sperry Flour Company

In regard to the value of your magazine as an advertising medium, will say that we consider it one of the very best. The results received from the copy carried in the February issue of your journal are far ahead of those from the other mediums.—Sperry Flour Company, Stockton, Cal.

Best Advertising Medium

The writer believes your paper to be the best advertising medium of any rural publication in California.—Paige Motor Company, by T. D. McLaughlin.

Advertising Sold Him Out

I have sold my season's output of baby chicks, through ad in February number, so do not insert it in March number. Will see you next year with an increased capacity.—J. N. Naas, East San Diego, Cal.

Always Gets Good Results

Enclosed find check for $1.02, for which please insert our ad in your classified for November. Insert same ad as last month and the month previous. We always receive good results from your paper and find it a first-class medium.—Pebbleside Poultry Farm and Hatchery, Sunnyvale, Cal.

Paid Better Than Any Other

My October ad has paid better than any yet inserted. Will double or treble same for your November issue. Copy follows soon.—E. E. Martin, Bangor, Wash.

Exceptionally Good Results

With reference to the 6-inch ad we have been running in the last two issues of your magazine, will state the results have been very far above our expectations. To date we have received a total of 17 replies, which we consider exceptionally good. We anticipate arranging for some yearly contracts and rest assured we will not overlook Orchard and Farm.—C. L. Best Gas Traction Co., By R. Tomkinson, Advertising Manager, Oakland, Cal.

He Ought to Know

Our recent advertisement in Orchard and Farm has brought us such satisfactory returns that we shall want another in your next issue.

Up to this writing we have received by mail 67 inquiries. Besides these, we have had numerous calls at this office. Included in the letters was one from Yokohama, Japan; another from Guatemala, Central America. We also had a personal call from a gentleman from Honolulu, H. T. The writer has been in the advertising line many years and had no reason to anticipate such big returns, and you may count on us as being your stanchest friends.—Nupro Evaporator Company. By Henry Simon, Secretary.

YUCAIPA GATEWAY COLONY THE CREAM OF THE GREAT YUCAIPA VALLEY

The Gem of all Southern California's Beautiful Valleys, and the **Largest Apple Growing District** [illegible]
Nearly 5000 Acres of Apple Orchards planted in Seven Years. Located 70 miles east of Los An[illegible]g the City of Redlands.
1400 Acres of the Choicest Apple and General Deciduous Fruit and Farming Land in the Valley, [illegible]ITY WATER, now selling in subdivisions of 2½ to 20 Acres, on easy Terms. The

GATEWAY COLONY

Occupies the northerly portion of the Yucaipa Valley, and forms its entrance via Mentone, Crafton and Mill Creek. It extends across the Valley's entrance from the base of the Crafton Hills (which separate it from the City of Redlands), two miles easterly, to the base of the mountains, from which it receives its supply of gravity water.

The Colony has an elevation of from 2700 to 3400 feet, giving it a most delightful winter climate—its early mornings crisp and exhilarating and a perfect summer climate, entirely free from extreme heat.

The **Gateway Colony**, being located at the base of the mountains, never fails of a large rainfall, its annual average for the past 30 years exceeding 25 inches, and hence but slight irrigation is needed for fruit, and none at all for hay, grain and first crop vegetables.

The **Gateway Colony** controls the entire watershed for two square miles along the mountain range, having an average annual rainfall of 36 inches, centering in Triple Falls Canyon, which opens on the upper slopes of the property. Pipe lines convey the water from the canyon to the large storage reservoir, from which it is supplied by **gravity** to the highest point of each colony tract. It is never failing and its quality cannot be excelled.

The soil of **Gateway Colony** is a thoroughly decomposed granite, ten to thirty feet deep, which can be tilled any day in the year, and which, with moderate cultivation, retains the moisture wonderfully. It is not only perfectly adapted for apples, peaches, pears, olives, plums, grapes and berries, but for potatoes, corn, peas, beans and, in fact, all general farm crops.

It is the home of the Red Winter Apple, California's most profitable horticultural product.

Reservoir No. 1, Area 1 1-3 Acres, 28 Feet Deep.

Beans, Interplanted, Pay for the Orchard, and Add Nothing to Cost of Cultivation.

WHY YOU SHOULD INVEST IN THE YUCAIPA GATEWAY COLONY NOW

BECAUSE, 1—CHOICE RED WINTER APPLES, grown under proper conditions, net the grower GREATER PROFITS than any other horticultural product grown in California.

BECAUSE, 2—Land in California, possessing all the conditions of climate, altitude, soil, rainfall, etc., necessary for the production of perfect winter apples IS EXCEEDINGLY LIMITED.

BECAUSE, 3—Yucaipa Valley is a "PROVEN" DISTRICT. The 5000 acres of apple orchards planted there in the past seven years tell the story, and prove beyond question that Yucaipa Valley Winter Apples in TEXTURE, COLOR AND FLAVOR are not excelled in any part of the United States.

BECAUSE, 4—A large percentage of the choicest apple acreage in this valley **has already been sold**, and at the present rate the supply will soon be exhausted, which means that land values will inevitably advance as the supply diminishes.

BECAUSE, 5—Freight and passenger transportation service for the valley will soon be supplied by extension of the Pacific Electric Railway from Redlands. (Its completion means another legitimate cause for advance in land prices.) Surveys have been completed, route selected and deeds for right of way are now being taken. Intrinsic commercial values are recognized by capitalists and loans of $200 to $300 per acre on young orchards are obtainable at low interest rates.

FREE

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June, 1918 *Arizona, the Object Lesson* 5c Per Copy

ORCHARD *and* FARM

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YOU—*"The Man with the Plow"*—may look far afield, your thoughts may be of the boys in the trenches, you may even feel a strange tugging at the elbow, but your task just now is to plow and plant and produce. *Your* fight is in the "supporting line." And from that line must come the strength of the

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Arizona, the Object Lesson

By C. E. Wantland.

VAGUE reports of big doings in Arizona—a great stir in the mining and farming fields, wonderful new enterprises in cotton—have been drifting across the State border into California. Orchard and Farm sent C. E. Wantland, the well-known land and statistical expert, down that way to find out what it was all about. Here is Mr. Wantland's first report. It staggers belief, but it's true.—Editor's Note.

UNCLE SAM made no mistake when he placed Arizona's star upon the flag. A brave people begged for many years for Statehood. In 1912 the door swung open and Arizona entered the Union. And it has kept the faith. It is now responding to the nation's calls and 5000 of its sons are on the way or ready to go "over there."

Its six years' progress has not been excelled by other States. It is the land where the unexpected happens and it is the object lesson among the States.

Not many years ago we heard of "The land that God forgot," of defiant deserts, bloodthirsty Indians and where "population was scarce and water scarcer"; next of railroads, rich mineral deposits, cattle and sheep, the Grand Canyon and petrified forests, then great copper mines and smelters, the beginning of Uncle Sam's irrigation venture, splendid cities and towns, the world's appreciation of the climate, the Ocean-to-Ocean highway and the Apache Trail; now the completion of one of the most successful United States reclamation projects—the Salt River—under the famous Roosevelt dam, the Yuma project under the Laguna dam now offering to share its surplus water with California's Imperial Valley, big artesian wells, irrigation pumping operations and a sudden, new $10,000,000 cotton crop.

Salt River's $12,000,000 Crops

The Salt River project, just completed and turned over to the water users, cost $15,000,000 for reservoirs, canals and power plants serving lands and several cities and towns. Four million dollars have already been returned and the balance is to be paid back by the settlers during twenty years. Everybody happy over the remarkable growth and prosperity following the building of this project which covers about 200,000 acres—producing great crops of alfalfa, corn, cotton, barley, wheat, oranges, olives, apricots, cantaloupes and potatoes. In 1917 Salt River crop values were about $12,000,000.

Adjoining this United States project has suddenly sprung up a new cotton district—a miracle of vigorous development. The Southwest Cotton Company (Goodyear Company) purchased in January, 1917, 15,000 acres and has rushed the tract to crop with hundreds of men, mules and tractors so that for 1918 this new district will probably show a cotton crop worth $4,000,000.

The United States Yuma project, costing $10,000,000 with about 35,000 acres cultivated in 1917, produced alfalfa, cotton, sundry grains, fruit, vegetables, etc., valued at over $3,700,000 or over $100 per acre.

Big Jump in Land Values

Land values in both Salt River and Yuma projects have increased rapidly—$300 per acre not being an unusual price for good improved land now. The profits farmers are making justify high prices, so they have come as a matter of course. New agricultural districts are being opened up by artesian wells and pumping operations.

The United States Department of Agriculture reports Arizona's agricultural products, exclusive of livestock, as valued at $27,000,000 for 1917, giving the State forty-fifth place—an underestimate, a record not to be proud of; but 1918 will probably show a greater percentage of increase in agriculture, and for all—agricultural, mineral, etc., a greater product per capita than any other State. With alfalfa at $30 per ton, short staple cotton at 30 cents and long staple at 75 cents per pound and all farm products bringing high prices, Arizona farmers certainly are prosperous. With mining production over $200,000,000 per annum and with 1,000,000 cattle and 1,500,000 sheep worth fancy prices, mining operators and stockmen can afford to smile.

Arizona has a population of over 300,000. It contains 72,000,000 acres of which about 30,000,000 are still unsurveyed. It has 27,000,000 acres tied up in Indian Reservations and Forest Reserves with probably six billion feet of good marketable lumber. The State owns 10,000,000 acres—school sections and special grants. About 22,000,000 acres are still unreserved and unappropriated United States public lands.

Liberal Laws Are Helping

The State land laws are liberal, sales being made on 5 per cent cash payment with 38 years on the balance—annual payments at 5 per cent interest. About $500,000 State land funds have been loaned to farmers following the plan in force in Utah, Idaho, Oregon and other States.

Arizona has a good school system and a State University, Agricultural College and School of Mines—of which the people are proud. Research

(Continued on Page 30

How to Kill Corn Worms

By C. H. Dwinelle.

COMING at this time, when food conservation is most important, here is a valuable article contributed to Orchard and Farm by C. H. Dwinelle, lecturer of practical agriculture in the University of California from 1878 to 1885. Everybody knows that the corn ear worm is the curse of the corn grower in California, but if Dr. Dwinelle's directions are carried out the ravages of the worm may be reduced to a minimum.—Editor's Note.

OF ALL the moths that plague the American farmer it is doubtful if there is any that ranges over more territory, or does a greater amount of mischief than that whose eggs in California produce the corn ear-worm. In the southern cotton belt its eggs would hatch the cotton boll worm, and in some other places the tomato worm. Besides infesting the three very important crops mentioned this insect has been noted as living upon something over a score of plants of economic importance.

While the larvae or worms, properly caterpillars, sometimes nearly two inches long, varying from brown to yellow, with lighter stripes, are too well known to farmers and housewives who have to husk green corn, probably not one in a thousand of these ever saw the parent moth to know it as such, or has a definite knowledge of its life history.

Anyone can secure samples of the moth by placing two or three ears of infested corn with well grown worms in them in a box, with a cover of wire gauze over the top. There should be two or three inches of loose earth in the box, into which the worms will burrow when ready to assume the chrysalis form.

In due time the grayish or brownish moth, nearly an inch long, comes out of the chrysalis and lays its dirty yellowish white eggs on the corn silk or other vegetation chosen. There may be several generations in a summer. In the northern Atlantic States there are usually two generations, in the Gulf States 4 to 6, and the chestnut brown chrysalids of the last generation pass the winter in the ground.

Attack When Dormant

The more the soil is disturbed during the autumn, winter and early spring the less likely are the chrysalids to go safely through their changes and produce moths in the spring. On limited areas the destruction of the chrysalids may be increased by having poultry in large numbers on the land when it is turned up.

If the poultry houses are on runners, so that they can be readily moved about, and a moderate amount of new land turned over at short intervals there will be great benefit in both cleaning out insects and nourishing the fowls.

The land also will receive a material benefit from the manure left by the poultry. Swine would serve the same purpose, and perhaps more effectually.

Many years ago a cotton planter in one of the Southern States found an efficient method for trapping the moths, and thus reducing the damage from the cotton boll worms to a minimum. He wrote an account of this and it was published, but it does not seem to have been noticed nor remembered as it should be, for the writer has never seen any mention of this method since he first read of it, now over thirty years ago.

Trapping the Moths

The planter knew that the moths in question were attracted by the odor of molasses and vinegar. So he set posts at intervals in his cotton field with their tops sawed off at about the level of the main crops of cotton bolls. A square piece of board was nailed on top of each post and on this was set a plate with molasses and vinegar in it.

The first night an average of 40 moths perished on each plate of the tanglefoot. These were removed the next day to give new comers a fair chance to get in on a good thing.

The catch ran at about 40 per plate for some time and then gradually so diminished in numbers that counting and removing them from the traps was given up.

This campaign cut down the hatch of cotton boll worms greatly. Each female moth would probably have laid from 200 to 400 eggs if allowed to run her course.

Remarkable Negligence

The writer has often told California farmers of the way in which their corn might be protected, but never found one who would try it. They make no effort to fight the worms that destroy from 10 to 100 per cent of the corn on each ear that they infest. It is often difficult to find a dozen perfect ears for exhibition purposes in a large field.

E. O. Essig says in "Injurious and Beneficial Insects of California," "The damage done is often enormous."

E. D. Sanderson in "Insect Pests," writing of the whole United States, says "2 to 3 per cent of the corn crop of the country is destroyed, worth $30,000,000 to $50,000,000."

To clean up a neighborhood will call for co-operative action.

The traps should be put in the corn fields as soon as the silk shows on the ears, but there is a generation, or more than one, before that, which might be cut off with advantage.

Let those who try this method report results to Orchard and Farm.

[illegible] Who Are Helping in Food Production and Conservation near Phoenix. They're Working in the Right Way, Too. [illegible] with them. It's the man in the black coat and white trousers, standing third from the right end of the front row.

Dairymen in Arms

THE dairymen of the coast are much exercised over the wholesale attempts that are being made by a certain condensed milk company and of an oleomargarine concern in the substitution of cocoanut oil for butter fat in the production of condensed milk and of near-butter.

The Western Meat Company of San Francisco has been buying thousands of pounds of copra, or dried cocoanut, which it intends to use in an immense plant now being erected in San Francisco for the production of the new oleomargarine. As the product is liked by consumers and is in reality a good war substitute for butter, the dairymen are alarmed at the prospect of this near-butter going into common use.

An S. O. S. call has been sent out to all the milk and butter producers of California by A. R. Bates, the State Dairy Commissioner, who says in a letter to Orchard and Farm:

"The very life of the dairy industry is at stake, not only in California, but in the whole United States. We must act at once to stop the use of cocoanut oil as a substitute for butter fat in condensed milk.

"A compound product of alleged skimmed milk and cocoanut oil is now being offered to the trade of San Francisco and vicinity by brokers. Some jobbers have stocked it and it is beginning to go out to the retailer.

A Fraud on the Public?

"It is illegally labeled, for the skimmed milk in it is not up to the State or Federal standard. This feature will be taken care of in due course by the food authorities and if they are to continue the company will have to bring their milk solids up or amend the label. This may cause a temporary setback; but we want to call your attention to what will be the far-reaching effect of putting out such an article.

"This is a fraud on the public, because, while the product is pure and has some nutritive value, cocoanut oil cannot have the same high food value as butter fat in its natural combination with the other milk solids.

Money in It

"Secondly, the company is saving, by separating the expensive item, butter fat, and using these cheap substitutes, cocoanut oil, at least $1.60 per case, but they are only giving the dealer the benefit of 80 cents. This forces the dealer to sell at 10 cents per can and only allows him 5¼ per cent profit for introducing this substitute, while the company puts an excess profit in its pocket.

"To my mind the greatest fraud is the injury that will be caused the dairy industry of the country, for if these tactics succeed it is the old question of butter vs. oleomargarine.

"Is this illegitimate, unnecessary compound to take the place of the natural article to the detriment of the dairy industry? For my part I am absolutely opposed to any tampering with whole milk and my constant effort is to raise the standards for dairies, for milk and for the products of milk.

What Is Feared

"The volume of the evaporated milk business of the country is now so great that if any real percentage is switched to this oil compound the excess butter fat released will cause such an over-supply as seriously to disrupt the butter market. That will mean such a setback that the dairy interest will not recover for years.

"Right now is the time to start before the stuff gets a foothold in our State. The dairymen should get busy, and through their associations, with the trade, with the food authorities (by asking for quick enforcements of the law and standard as to skimmed milk) and with our Senators and Representatives in Congress endeavor to discourage this substitute and provide for regulatory legislation."

My Dehydration Experience

By E. Clemens Horst

HERE is the most valuable article on dehydration ever published on this Coast. It details the personal experiences of Mr. E. Clemens Horst of San Francisco, who has gone into the work of dehydrating vegetables on a very large scale in the northern part of California and tells how he has interested the Government to such an extent that it will feed large quantities of the dried product to the army and navy forces.—Editor's Note.

VEGETABLES not only contain the various salts and chemical constituents required by the human body, but they are palatable and refreshing to the taste. They can be grown almost everywhere, with the minimum of labor, as was demonstrated by the thousands of "War Gardens" planted last year, in response to the appeal of the Government. In these war gardens, the majority of which occupied but small parts of city lots, millions of dollars' worth of food supplies were produced.

Most of these vegetables, however, were perishable and had to be consumed during the growing season, or in the case of the hardier varieties, such as potatoes, they could be stored for only a few months. Under the system of vegetable distribution as practiced in this country, fully half of the fresh supply is wasted or lost through decay before it reaches the consumer.

If the surplus supply of vegetables were dried during the summer months there would be no waste, for every portion of the product could be utilized. The green tops make splendid feed for cattle, and the peelings from potatoes will fatten hogs.

What Vegetable Dehydration Means

The drying or dehydration of vegetables means merely that the moisture is taken from them, leaving the structure, texture and food values absolutely unimpaired. As authority for this statement, I refer to Bulletin 841 of the United States Department of Agriculture. In removing the moisture from the fresh vegetable, a perishable product is changed into an imperishable one, and a market restricted to the immediate vicinity of the truck garden is enlarged to take in the whole world.

While certain fresh products are shipped long distances, the cost of transportation is so great that only the very rich can enjoy them. In shipping green things to market, they must be packed in ice, or kept in refrigeration cars, at enormous waste of effort and money. The average family has vegetables served on the dining table for only a few months in the year, and during the fall, winter and early spring seasons they must go without or use expensive canned goods.

If the vegetables were dried as they come from the garden, they would be within the reach of every family, and at all seasons of the year the body would be given the kinds of foods needed to maintain it in perfect health, and the great variety of vegetables to choose from would prevent the monotony of diet so characteristic of families living in cold climates.

As Good as Fresh Foods

Some people might be prejudiced against the use of dried vegetables on the ground that in the drying process they would lose their flavor and freshness. This is not the case, for when the dried varieties have been soaked in water, to restore their bulk, and then cooked, the result is identical with that produced by using the fresh vegetable. That this is true is shown by experiments which I made in certain hotels in San Francisco. Dried vegetables of various kinds, raised on my own lands, and dried in my own plants, were furnished to a number of the large hotels in San Francisco and they were used in preparing the different menus served in the hotel dining-rooms. Not a single one of the hundreds of patrons detected any difference between the fresh and the dried vegetables.

I have on file dozens of letters from hotels, cafes, clubs, hospitals and private individuals, who have tried dried vegetables, and they are all enthusiastic over the results obtained.

How I Began the Work

My interest in this subject dates back over a year, when I first began experiments in the drying of vegetables. My business is that of hop-raising, and that I have been successful in that line is shown by the long string of hop ranches controlled by my company, from Canada to California.

In the business of raising and curing hops it is necessary to maintain large drying establishments in which the hops are cured or dried. These plants are used for only a few weeks in each year, but they must be maintained intact just the same.

Last season the thought occurred to me that perhaps I could help the food situation by raising large quantities of vegetables on my California lands and drying them in my hop kilns. The hop is a vegetable plant, and when it comes from the field it contains moisture which must be extracted before it is fit for shipment and use.

The moisture causes spoilage in all fresh products, and if the curing of hops took away this moisture, I felt sure that similar results could be produced with vegetables.

From Hops to Vegetables

I immediately instructed the superintendent of one of my California ranches to substitute vegetables for hops on that ranch, and large acreages of different kinds of vegetables were planted. By the time they were matured, I had installed in the drying plant located on the ranch modern machinery for preparing the vegetables for the drying process. Peelers and cutters and shredders, and various washing machines were used to handle the produce as it came in fresh from the fields.

No expense was spared to demonstrate fully the most effective way to dry vegetables, and some of them were dried whole, others cut into different sized pieces, and still others sliced or reduced to small, thin pieces.

I found that the essential thing about drying vegetables, or fruits, is to see that every portion of the product is fully dried, for if a small wet spot is left, spoilage will result. If the core is not removed, it is absolutely necessary to have it thoroughly dried.

Generally speaking, the article to be dried must be cut to a size that will permit of thorough drying, but with certain varieties, such as potatoes and bananas, I have been able to dry them in sufficiently large pieces that when restored by the introduction of water they can be cooked like fresh ones.

A Three to Ten-Hour Process

In my drying plants the system of heating differs materially from those used in other hop plants. We introduce the hot air into the drying chamber by forcing it through a pipe which discharges against a round bowl-shaped depression in the middle of the floor. The hot air, striking this rounded bowl, is whirled into every corner of the room, and a uniform temperature can thus be maintained.

After being cleaned and sliced, the vegetables were left on trays in this drying room for periods varying from three to ten hours, until the moisture was entirely exhausted.

When this had been accomplished the process was finished, and the only thing remaining was to put the product into paper cartons or tin cans. Some of the products were packed in a loose state, others compressed into cubes, and some of the tomatoes were ground into powder and placed in tin cans.

The ordinary dried vegetable can be packed in paper cartons or boxes and kept indefinitely, if protected from excessive moisture.

Thousands of pounds of dried vegetables of more than twenty varieties were put up by me in 1917 without the public knowing anything about it and without any prospect of selling a pound.

Everybody Liked 'Em

Having demonstrated to my own satisfaction the quality of the product, I next wanted to secure the judgment of as wide a variety of possible users as I could. Hundreds of pounds were made up into samples and dispatched to hotels, hospitals, restaurants and agricultural chemists to secure their verdict. Not a pound was offered for sale until I could be sure that the product was all I thought it to be, even though a number of unsolicited orders came to me as a result of the tests made from samples. The responses received from my sample campaign were all exceedingly favorable and, having the evidence of scores of users to back up my own judgment, I offered to turn over my various hop-drying plants to the Government to be used, during the period of the war, in the dehydration of vegetables. The United States Food Commission detailed Mr. Lou D. Sweet to investigate the vegetable-drying problem, and much valuable information was secured through Mr. Sweet's efforts. Finally, I was asked to go to Washington and present the matter to Congress. A hearing was had before a sub-committee of the Committee on Agriculture and Forestry of the Senate, at which the whole subject of dehydration was gone into, and various scientists of the Government and elsewhere heard on the proposition.

Congress Convinced

I gave the committee the results of my experiments, supplied them with samples of my products, which were tried in their homes and in the Capitol restaurants, and so convinced were these Senators that efforts were immediately made to have the Government try the dried vegetables for feeding the army and naval forces. That this country is safe in using this new product is shown by the experience of England, France and Italy, who for years have purchased millions of pounds of dried vegetables in Canada and elsewhere for use at the front.

Germany, at the beginning of the war, had over 800 vegetable drying plants, and this number has increased to nearly 2000 at the present time. Uncle Sam has appropriated a million dollars for the purchase of dried vegetables, including those of my plants, and during the coming summer a large portion of the acreage on the Pacific Coast previously devoted to the growing of hops will now raise potatoes, tomatoes, carrots, spinach and many other kinds of vegetables. As many of my own plants as can be utilized will be devoted to vegetable drying, and new ones are now being constructed for me in San Francisco and Sacramento.

If we can educate the American people to a proper appreciation of the value of dried vegetables, the cost of living will not only be decreased, but large areas of unoccupied lands can be devoted to the raising of the perishable crops which can be saved definitely by the drying process.

Drying Saves Food

Girl Power on the Farm

First Unit of Women's Land Army in California

GIRL power on the ranch is real power and it is to be reckoned with as such.

Don't smile, Mr. Back Number. You may be surprised before this war is over. You may have to take off your hat to the feminine farm hand, just as they have done over in England.

Many British soldiers today are fed by the women of that country, and many of our soldiers will be fed by our own noble women.

The Women's Land Army of America, organized in the East some months ago, is enrolling hosts of new soldiers of the soil every week. The first unit of that army in California has been working down in the Elsinore valley and good reports come from its operations.

D. W. Harvey, a big rancher who cultivates over 4000 acres in that valley, pays girl labor a big compliment. He has been hiring a lot of girls and he knows what they are good for on the ranch. Mr. Harvey says that women as farm hands are slower, but surer than men. A careless man laborer will hoe up as many plants as weeds, but women are more careful.

Hand Cultivating

Emulating Her British Sisters

As to the difference between women and men berry pickers Mr. Harvey says that women lift the vines out of the way—your average man farm hand kicks them aside. With men workers, he figures, there is a loss of two tons of berries to the acre, and all because of careless picking.

They Can Handle Machinery

"And when it comes to machinery," he says "I'd rather have one woman than three ordinary men. She can drive horses just as well—if she can drive at all—and she will oil the mowing machine, for example, where and when it should be oiled. Men are notably careless in this respect, and thousands of dollars are wasted by failure to be properly careful."

Readers of Orchard and Farm will remember the story of Nettie More who traveled through Yolo, Napa and Lake counties last summer picking fruit and writing about it for this journal. Nettie More has been writing some suggestions as to girl labor on the ranch. Here is what she says:

Read This, Mr. Orchardist.

"Fruit picking is not hard, but it [illegible] the interest of the orchardists to [illegible] work easy for women

"If orchardists would co-operate with their help, pickers could systematically harvest the different fruits [illegible] the same locality. But [illegible] their help, although idle [illegible] harvest the crop [illegible]

"[illegible] at different [illegible] March on spinach and asparagus. Women prepare and pack these vegetables. Japanese gardeners raise and pick them.

"Cherries ripen the earliest in Yolo, Solano and Sacramento, apricots and peaches follow in these same sections. Cherries and berries are on at the same time in Sebastopol sections followed by apricots, peaches and pears in all Sonoma. Santa Clara cherries ripen several weeks before apricots, followed by peaches, pears, and prunes. Sacramento, San Joaquin and Fresno have a steady harvest from cherries to grapes and prunes.

Lake county, string beans and canneries, pears and prunes ripen at the same time. Hops follow in Mendocino county.

Oranges in citrus sections of Southern California follow prunes and late peaches through the winter months.

"Are you a woman and want to join the fruit-picking army? Have you an automobile, if so prepare your camping outfit carefully. Take nothing but what is absolutely necessary.

"If you start early, before the weather is settled, heavy clothing and wraps can be sent home when not needed.

"If you have no auto, the same camping outfit can be sent by express or parcel post. It must consist of a tent, oil stove, folding table, chairs and cots. Many take a large bed tick to be filled with straw which is very convenient.

"A large trunk checked on a railroad ticket will carry bedding and cooking utensils, and there can be a suitcase for clothes.

"Do not attempt orchard work in skirts, nothing but overalls will do. An oilcloth apron for camp work is good.

"Many take their old clothes to wear out, this is a poor policy as they require washing several times before discarded.

"The less washing you have the better.

"Tennis shoes with rubber soles are good orchard shoes, the rubber prevents slipping on the ladder steps.

"Do not reach beyond an easy arm length, use a two-foot limb with a crotch at one end to draw the limbs to you carefully. They will bend without breaking if care is taken.

A Word to the Orchardists

"Mr. Orchardist, look at your ladders. Are they the kind only acrobats

(Continued on Page 37.)

System on Your Ranch

Here Are Some Very Helpful Ideas

VERY simple methods of accounting are observed in the practice of food growing, and with all our fine herds of livestock, as well as the remarkably varied present activities, there is a desirable necessity for an agricultural business education.

Learning while earning is quite practical, and our large cities provide fine night schools. Doing, speaking and writing has been the order of human development.

Practical farm knowledge is worth while today, and who is so unpatriotic that he will not show others or tell or write of his practice?

Well arranged facts of farm crops and their cost of production as well as those pertaining to soil fertility, diagrams of the tile drainage locations, irrigation and fertilization applications are quite worth while.

It has often occurred to our county assessors how to serve the farmers in some simple business educational practice. These assessors could be and probably are fine teachers. The practical farmer can show results, and surely some business education, especially in usable arithmetic, bookkeeping and commercial law are very valuable.

J. E. Owen, a Los Angeles business educator, says: "Farming is a business. A modern farmer has important business relations, not merely with the grocer, and a few customers, but he must deal with the bank, the railroad, the local growers' association, the middleman in the city, the farm journal, the implement manufacturer and dealer as well as the district, State and national conventions. He comes into contact with those of practical education and he likes to hold his place with them."

The cost of house, barns, tools, seeds, livestock, as well as drain tile and fertilizers, with the first cost of the land, constitutes a working capital. Labor, feed and actual first cost of seeds, and livestock deducted from the selling prices when marketed constitute profits and what percentage is such profits on invested capital, the practical farmer always knows.

Reducing soil fertility is expensive loss of farm capital, and it costs to grow wheat. To grow 20,000 bushels of wheat costs no less than 28,400 pounds of soil nitrogen, and none of it can be taken from the air by wheat plants.

Legume plants, having root tubercles or nodules, are the only ones that can use some of the three-fourths nitrogen content of atmosphere.

It costs the soil to grow the 20,000 bushels of wheat about 4800 pounds of phosphorus and 5200 pounds of potassium. When farmers sell this fertility, we ask how can they restore their farm capital?

Alfalfa, sweet clover and some other legumes, as well as earthworms, can, if not drowned by surface irrigation, do much to bring rich mineral supplies from deeper soil.

It is very easy to know the profits of certain livestock according to actual cash prices of controlled foods and the selling prices. Some tenants make more profits in farming than the owners, aside from increase in land values. Actual land values depend on the actual profits according to capital involved, which is increasing or decreasing every year. Most city business corporations know their profits or losses every year, including the time of all human labor, and every practical farmer does the same. Our orchard farmers are usually practical in their business dealings with others and some fairly well developed system of bookkeeping is apparent, but many others employ little or no system in their business.

Pioneer grain and stock farmers are not much given to very well defined systems of accounting easily understood by others.

Our excellent plant and animal breeders have a very exact system of records and cash accounts. The remarkable food growers' and successful selling organizations of California, the Northwest and Florida are noticeable and the finest systems of bookkeeping and commercial law have been in evidence in their affairs.—W. R. Mitchell.

Systematic Land Leveling

IT IS commonly stated that too much pains cannot well be taken in leveling land for irrigation, but a person never realizes the importance of this fact until he tries to get water over uneven land.

Just as important a matter, but one very seldom spoken of, is the necessity of plowing in such a way as to keep the ground level. A little of the wrong kind of plowing will cause an immense amount of trouble, and a little more of it will make it impossible to irrigate the land at all properly without re-leveling.

It was the fate of the writer to rent a year ago a piece of land planted to young olive trees. The land had never been properly leveled, but would irrigate fairly well in most places when the olive trees were set out.

In 1916 it was farmed by a man who wanted to raise potatoes the way they should be raised. He, therefore, plowed most of the land twice. First he plowed away from the trees, which he figured was the way to plow. Then he went over it a second time, sinking in the plow up to the beam, but instead of plowing toward the trees, he plowed away from them again, getting a high ridge down the center of each tree row and a deep hollow along the trees. And then to make a bad matter worse the following year the man who plowed the place for the writer plowed the dirt from the trees a third time, making the lands so high in the middle and so deep along the tree rows that the water would only run down deep furrows, and whenever there was a small break in the sides, or when the grade flattened out too much—since the land had not been properly leveled in the first place—the stream would break out of the furrow anl run down to the trees. Also in leading water in laterals across the orchard it was necessary to build the ditch banks high at each row of trees and to cut in deeply at each center in order to get the water along. Altogether that plowing caused the waste of about a third of the water applied and caused about twice as much time and work as ought

(Continued on Page 13.)

June Budded Trees

By Luther Burbank.

SOMETIMES instead of allowing fruit tree buds to remain dormant over winter they are placed in the young seedling trees early in the season, as fully ripened buds often can be obtained in June. The tops of the young trees are then broken over, leaving a piece of bark and a part of the wood to continue circulation.

By irrigating the young trees the buds will generally start out as soon or even before they are fully united with the stock. These make trees from one to three or four feet in height, and by nurserymen are called June buds.

When well grown they are excellent trees, as they can be removed without injuring the roots, the whole root system being preserved, while with an older tree much of the roots have to be destroyed in transplanting.

Low-Heading Prevents Sunburn

Another great advantage in the June bud trees, especially for California, is that all the side-buds being young and fresh the tops can be cut down low to form heads of any uniform height desired.

Low-heading is of great importance in California, as the branches thus protect the trunk from sunburn, and the fruit is much more readily gathered, and if it falls to the ground it is less likely to be bruised.

By the improved methods and tools now used for cultivation, the ground can be thoroughly loosened up about the trees with as much facility as if the trees were headed three or four feet high, as was formerly the custom. Besides all this, there is much less danger of the trees being blown over by the wind.

How to Graft

Grafting is but another form of budding, usually, however, performed at a different season of the year. When grafting young trees in the nursery rows, instead of performing the work in July and August—the usual time for budding—we wait until toward spring of the succeeding season.

The best and quickest way for grafting young seedlings is to take a piece of the new wood, about two and one-half inches in length with good, well formed buds on it, slice off both sides of the lower end of the graft in the form of a sloping wedge, the cut on each side being not much over one inch in length—both sides being alike—but leaving one of the edges thicker than the other.

The tree to be grafted is bent to one side with the left hand; with the right hand a sloping gash is made downward on one side of the tree; and the graft, described above, is pushed down into this cut as far as it will go, being careful that the cambium or inner bark of the graft and seedling meet at some point, so as to secure a union of the two.

As the sap flows only between the bark and the wood, no union can take place unless the graft is so placed. After the graft has been placed, the tree is allowed to spring back to its upright position, and is at once cut off with a pair of pruning shears, about two inches above the graft, by a helper.

Warm wax is usually applied with a small paint brush over the wound to keep out water, germs, and dry air, though this is often omitted with good success.

This is the quickest and surest plan for grafting seedling stocks in nursery rows with which I am acquainted.

Some men can't understand why their wives are so tired at the end of a day's work. Go to the average farm and notice the riding plows, the riding cultivators, and even the riding grindstones. Then go to the house and see how many riding dish washers and riding washing machines you can see.

San Ysidro, Dream Colony

By Burton Hale.

AWAY down in the southwest corner of the map is the fertile valley of the Tia Juana, the Aunt Jane of the Mexicans. It is partly in California, and partly in Mexico, and in the California section is the odd little town of San Ysidro.

But little as it is, San Ysidro is quite famous. Many magazine and newspaper articles have been written about it and its people, and many a city-tired Eastern heart has yearned for the life there—the promise of immunity from the wear and tear of this hurrying, driving world, the promise of a living to be made from an acre or two.

Yes, the Little Landers of San Ysidro, living in this quiet vale, in a climate probably unsurpassed in all the world, have been the envy of many a dupe and gull of our present-day civilization. But let all such now be assured that, so far as the history and example of this Little Land colony is concerned, there is nothing much to envy except the ability of those now remaining there to enjoy the pleasant sunshine and the gentle sea breezes that are waited in from the west every day.

The Colony Today

San Ysidro, the dream colony, the white hope of the Little Landers, is still there and so are the bronze statue of General Grant, the social hall and the church—all erected as a part of a scheme that was to make its people thrifty and happy, and the west wind still blows, but—

Some say that the flood which swept down the valley in January, 1916, killed the colony. Others say that it was on its last legs before the flood came. It is not to be denied that the rising of the waters laid waste the land lowlands of the place Tia Juana, but they are still there, and so are the bench lands above the valley, but the dream is over. The colony once boasted three hundred families. Now it has but one hundred and most of these would be glad to sell their little holdings and set their backs upon San Ysidro.

According to the story of C. F. Young, formerly the colony's secretary, the man who made the minutes of its meetings and who watched the colonists come and go and who, therefore, ought to know, the trouble has been that instead of making a good living, as they fully expected at the first, most of the colonists never made more than a bare existence. And yet some of them transport their products to the San Diego market in their own automobiles and have a dime or so to spend for a movie show

The Co-operative Store

Great things were expected of the co-operative store, but as Mr. Young points out, human cupidity wrecked that enterprise and it was as good as dead before the coming of the flood. Some of the co-operators found that they could get a pound or so more of sugar for a dollar than they could get at their own market, and they waived the other advantages in the way of bargains to be had in the store they had promised to patronize. Others didn't quite like the way the shop was handled, and there were other snags in the way of the progress of the affair. At any rate it died.

The parent corporation itself—the one to which all the Little Landers of San Ysidro subscribed, also languished, and there is now nothing left of its corporate existence save the church and the social hall which are run by individuals and not by the place as a colony, which really no longer has any place on the map.

The Dream Has Vanished

Land which formerly sold at $300 to $700 an acre is now going begging for purchasers. Of course, this is true of many other places in these war times, but it is particularly true of San Ysidro, because the dream has vanished. It is probable that any of the two hundred families that have deserted the place will return there.

Some of the Little Landers that have remained are satisfied with their lot. They are not, save in some few exceptional cases, making a living from their land, but manage to piece out with odd jobs of carpentry and other industries work. The original idea was for the colonists to do public work upon the roads and in other ways and take their pay in tickets that would eventually be worth so much money at the store or in lands, but that plan did not work out.

Fruit trees planted by the colonists when they went to the Tia Juana six or seven years ago are now in bearing, but the fruit acreage is small. Figs do well there and so do peaches and some other fruits, and it is likely that a few large orchards will grow out of the consolidation of the small holdings at some later time, though this is not being done at present

A Poultry Project

Chicken raising on the Weeks plan is being started by one of the colonists, who is hopeful of making a good thing out of his industry.

L. E. Scott, the colonist who became famous as the man who made a living on a sixth of an acre and confounded John D. Spreckels in an argument upon the relative virtues of being a Little Lander or a capitalist, was among the deserters of San Ysidro. He came from New England and is said to have returned there after a three years' demonstration of his ability to grub a livelihood out of a backyard.

The town is protected by 150 soldiers who peer over the border, looking for trouble but as yet, not finding it.

The race track gamblers of Tia Juana made San Ysidro lively for a time. They were a source of considerable profit to the colonists, as they were able to rent houses to them and to sell them garden truck, but when the track was closed and the horses ceased to trot around it even this bit of revenue was denied the Little Landers.

Where Are They Now?

Where they have gone nobody knows, but they are scattered far and wide. They probably are not trying to make a living from an acre apiece, and yet perhaps in some other part of California they are still dreaming that dream.

"After all your experience and observation," I asked Mr. Young, "what do you think of a man trying to make a living on an acre of land?"

"What do I think of it?" said the bronzed North-of-Ireland colonist "Why, I think that if you would give some men a hundred acres they couldn't make a living."

This didn't answer the question, but it set the questioner to thinking

Sugar From Cactus

Burbank Idea Sustained

NOT long ago Luther Burbank made a suggestion that he declared would help to win the war. It was that sugar could be produced from the fruit of the spineless cactus which he had brought to perfection.

Now the Burbank idea is not that commercial sugar could be made from cactus fruit, for he conceded that that would be impossible, as no known process will extract and crystallize the sugar from this fruit. The idea merely was that fruit sugar, or glucose should be made from the tunas that grow so abundantly on cactus plants.

Mr. Burbank made his statement as the result of a report from a man in Texas who had made candy from cactus fruit. So many learned college professors had sneered at the cactus as a source of food production of any kind, that Mr. Burbank has had a hard time convincing people of the merits of the plant and its fruit.

A Surprise in Store

"The cactus," says Mr. Burbank, "is going to surprise a lot of people some of these days. Like alfalfa, which languished for many years without appreciation, it is due for great utilization when its work is recognized.

"No such thing as a crop failure need be feared by the man who raises cactus. It will produce fifty tons of fruit to the acre in any climate Drought does not hurt it—it does not need much water, yet water cannot harm it, and frost never touches it

"The cactus fruit is very rich in sugar, especially that grown in the hotter climates, but it is fruit sugar and no known process will extract the sugar and crystallize it. The cactus sugar is refined in the form of glucose which is the basis of most candies, and used as a binder in practically all. There is immense opportunity here for service to the nation."

Glaced Cactus Fruit

Mrs. H. B. Montieth of Santa Rosa, Cal, which is the home of Luther Burbank, has made an important discovery in this line. She has been producing glaced fruit from tunas, using practically no sugar in the process. Those who have sampled her product say that it is delicious and the equal or superior of other fruit prepared in like manner.

Mr. Burbank declares that Mrs. Montieth's discovery only goes to prove his many contentions for the value of the cactus and cactus fruit. He has now perfected the cactus to such a point that it is not only spineless, but the spines and seeds have been eliminated from the fruit.

Burbank has now four varieties of fruiting cactus — crimson, white, orange yellow and orange in color, as well as several varieties of forage cactus.

The cactus can be raised from seed planted in a window box, warm room or out of doors.

Ripping Out the Lumber

THE lumber cut of California for 1917 broke all records, according to a recent forest service report. The estimate places it at 4,424,000,000 feet or 4,000,000 feet in excess of the 1916 cut Moreover, the 1917 figures represent the cut of about fifteen mills less than reported in 1916, thus indicating greater activity on the part of individual mills, most of which are bending every effort to meet the increased war demands

One hundred sixty-nine mills reported a cut for 1917 of 1,417,[illegible] feet, b. m., and the output of the largest mills was 1,317,245,[illegible] feet. The more important species, [illegible] constituted 487,458,000 feet of the [illegible] western pine, 478,565,000 feet [illegible] fir 156,083,000 feet, [illegible] 000 feet; white fir [illegible] cedar 21,310,000 feet, spruce [illegible] feet

Boys Help Farmers

YES, the boys of America are in line!

They are shouting the battle cry of feed 'em.

They are looking the potato square-in the face.

They are driving a straight furrow to Berlin.

They are keeping the home soil turning.

They are yelling to their young friends, "Come on in, boys, the plowing's fine!"

They are crying to each other, "Beet the Kaiser!"

All through the middle west the schools are turning out youth to speed up food production.

On the Pacific coast they began early and will work late.

Farmers who scoffed at boy labor early in the season last year were inclined to take another view of it before the harvest was over.

Why?

Because school boys and girls saved the fruit crop of the Napa Valley.

Because the boys were a big labor asset in California beet culture.

Because if it hadn't been for the young folks the prune crop would hardly have gotten itself into the hands of the packers.

Because in a thousand ways it was demonstrated that boy power, and girl power, too, helped immensely in the harvest.

California Boys to the Front

California is becoming well organized. High schools of the State are enrolling all boys between the ages of 16 and 21 who wish to work during the summer. The Young Men's Christian Association will arrange for the general supervision of boys in camp and boys placed within the immediate territory of camps. This supervision will include arrangements for board and lodging, religious, moral and recreational administration. Wages and the supervision of boys at work will be arranged between the farmers on the one hand, and the Farm Adviser and the Young Men's Christian Association supervisor and the boys themselves on the other.

The County Farm Advisers of the State will discover and list the kind and amount of help that will be needed, and, in co-operation with local school and association authorities will arrange for the transportation and placing of boys enrolled.

There were 30,000 boys working on California farms last summer. The major problem in securing additional help this current year is the mobilization of more boys from the cities of the State.

All Over the Coast

Oregon and Washington have thousands of boys enlisted and a good many girls, too.

In Arizona the boys did wonders last year and will do more this season.

That Nevada will do its share in mobilizing the boys of that State into the United States Boys' Working Reserve for work upon her farms and will train them for the work is evidenced by the activities of the University of Nevada and of all the public schools of the State.

A letter signed by the Governor, the State Superintendent of Schools and the president of the University of Nevada, has been sent to every school [illegible] reminding him of the necessity of enlisting boys between 16 and [illegible] of age in the government [illegible] for farm work during the [illegible] vacation, and calling his attention to the short four-weeks training [illegible] in practical farm craft [illegible] given at the University. [illegible] toward promotion or [illegible] will be given by the State [illegible] to all boys for [illegible] training. No tuition [illegible] and a very special [illegible] for room and board [illegible] arranged [illegible] school districts [illegible]

Great Season for Oranges

By Henry G. Tinsley.

"IN thirty odd years of experience in growing oranges in Southern California and in the Fruit Exchange," said the veteran, P. J. Dreher, the other day, "I have never known so marvelous a promise of productivity and splendid market prices as now seems to be in store for the California citrus fruit growers. The blooming has been marvelously prodigious, and, with the solution of several problems in the growing of orange crops the outlook is certainly most promising. I look for the record-breaking yield of all varieties of oranges next winter and spring and the finest kind of a market."

Like reports come from every part of the citrus growing region. It looks good from any angle of one's vision. Go out into the orange and lemon valleys of Southern California and note the supreme optimism that possesses the growers. Take note of the high prices at which the old-time groves have been selling lately to the veterans in the industry. Groves that you and I might have had for $1000 or $1200 an acre two or three years ago, now sell to men who have had a generation of experience in orange and lemon production at prices varying from $2000 to $3000. Every day the daily newspapers are telling of how this or that grove has had a buyer at the biggest valuation ever known in the respective neighborhoods.

Big Bloom After Rest

Many reasons obtain for the extreme optimism of the growers. The marvelous blossoming of all varieties of orange trees in California is one of the chief reasons. Never before in the history of growing oranges in the State has the blooming been so prolific.

After the longest period of rest the groves have ever had they have come forth rejuvenated by a long period of cessation from productivity and have made up for lost time in a way that only nature knows how.

On June 16 and 17 the warmest period ever known since oranges and lemons were planted in California fell upon the State. That caused a most serious "June dropping," which cut the orange yield down even to fifteen per cent of a normal crop. Hundreds of navel orange groves everywhere in Southern California suffered a dropping of ten boxes a tree while the fruit was the size of peas. The ground beneath the trees was literally covered with tiny green oranges. A normal production of 31,000 carloads of oranges was cut down in two days of heat to 7300 carloads. The trees relieved of the burden of bearing a normal crop have had a long and beneficial rest. Now they are ready for a great year of productivity and they have signalized the year by a prodigious blossoming.

It has been a sight worth going long and far to look upon. The trees have been so coated with immaculate white blossoms that they have looked like immense balls of snow atop the ground. The peculiarly sweet scent of blooming oranges has pervaded the air for miles around. So far as physical conditions are concerned the citrus trees of California are in prime shape—never beter.

Groves Cleaner Than Ever

Another reason for the fruit growers' optimism is the rare cleanliness of their groves throughout the length and breadth of the orange and lemon growing region. The hot weather of last year did more to exterminate scale pests and to rid the groves of fungus growth than any agency ever did before, either by fumigation or by sprays of chemical solutions. Old Sol has done for the fruit growers in ridding their groves of black scale and red spiders what they could not have obtained by the expenditures of tens of thousands of dollars' worth of chemicals and months of labor.

In the Redlands, Riverside and Pomona districts, the old-time home of the navel orange, the groves have not been quite so clean in foliage and so wholesome in appearance in the memory of the growers. Hundreds of growers say that the unprecedented heat of 1917 has been a help to the citrus industry in that it has put tree productivity ahead for at least twelve years.

But more than all else, the optimism among citrus fruit growers is the finding of the cause of the "June drop" in orange groves, especially in navel groves. There is no need to tell one who has ever had any experience in growing the golden spheres for market how the heart of the average grower sinks very deep each June and early July as he daily observes what seemed to him a magnificent promise of abundance in his grove in May suddenly become a fear by reason of the carpeting of the ground with tiny green oranges beneath the trees. Many a grower has felt his May-time hopes going rapidly into thin air as each morning he viewed the earth newly covered with green pellets, which he had a few days before had bright anticipations of harvesting seven or eight months later as golden oranges at $1.50 or $2 a box off the trees.

Cover Crops Decrease Drop

Now science has shown that the annual June nightmare of a drop may be easily avoided. The experiment has been tried so successfully during the extra heated term last year that the State University horticultural experts have decided that they are on the right road to checking forever the June drop in the orange groves, especially in navel groves.

The remedy—if not an absolute cure—is the creation of moisture among the trees. Last June amid most trying circumstances the drop was checked to a marvelous degree. Cover crops of alfalfa planted between the rows of trees will do the work. Simplicity itself. In past years the thrifty grower has been accustomed to planting a cover crop of peas or some other legume among his orange trees and plowing the growth of green vines under the soil in the late spring so as to give the nitrogenous qualities of the legumes to the soil. The ground has been left barren by June, when warm weather and drying winds have come over the grove.

For several years the State horticultural authorities have been experimenting with summer cover crops in the groves and they have found that the dry winds and absence of cover crops in the groves to keep the earth cool and to shed moisture around the grove are the reasons for the June drop. In fact in localities nearer the sea where the warm days do not come till July the dropping of navels occurs more frequently in July than in June—the farther from the ocean the earlier in the summer occurs the annual dropping of the tiny fruit—a month or so after the blossoming when the fruit is setting.

Alfalfa Will Help

The State University people are of the opinion that the planting of such moisture-making cover crops as alfalfa will save any navel orange crop from the dreaded dropping in the warm days of early summer.

"I am absolutely certain that by planting thick cover crops among the trees on any orange grove the loss of tens of thousands of dollars annually

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Valuable Bean Grown by Indians

The Tepary Coming Into Common Use.

AMONG the Pima and Papago Indians of the great Southwest the tepary bean has been grown for many centuries. The varieties most commonly grown among these tribes and probably of the greatest economic value are the white and yellow seeded sorts, known as the white teparies and the yellow teparies.

From seeds obtained from the Indians, the white farmers of the Southwest have been growing the tepary bean for many years, and its use has gradually spread into California and Nevada. All those who admired the Examiner demonstration garden of 1917 must have observed the hardy and wonderfully prolific plants in the northwest corner, which was largely devoted to tepary beans.

George F. Freeman of the University of Arizona has written a valuable pamphlet on the tepary bean, in which he calls attention to the fact that it is a dry-farming product. He prints a table to show that in Yuma and Tucson teparies have yielded three to ten times as many pounds per acre as pinks.

The Indians seem to prefer the pink to the tepary, but if soaked for twelve hours before cooking, the teparies double in size and weight, and when cooked are light and mealy and have a rich aroma. They are declared by C. T. Catlin, the food expert, to be richer in food value than ordinary beans.

On the other hand, a recent bulletin issued by the University of California says:

"The tepary has not been recognized as a commercial product until the last three or four years, and there has been much difficulty in securing its acceptance on any of the markets of the East or West. Consumers have objected to its flavor and odor when cooked. One carload which went to Washington, D. C., could not be sold, and the dissatisfied dealer attempted to resell it at a loss. Similar experiences have been reported from other parts of the country. It has been unfavorably received in San Francisco, and cannot be sold even to the cheaper restaurant trade. Special methods of cooking, designed to eliminate the strong flavor, are now being proposed, and it is hoped that a staple market may in this way be established. See California Circular, 'Cooking the Tepary Bean,' September, 1917.

"By careful management, it is possible to take two crops in a season from the same land. The seed germinates quickly in soils of low moisture content, but rots in cold moist soils.

Labor for Harvests

THAT California must make a strenuous effort to recruit farm labor to meet the harvest needs from every available source is an absolute certainty, in the opinion of State Farm Labor Agent R. L. Adams of the University of California. As a result of a carefully conducted inquiry into probable needs and available supplies for the 1918 season, an estimated addition to available labor now in sight must be forthcoming to the equivalent of 12,000 men for the "peak load" harvest needs.

To meet this need, according to Adams, will require the services of every man, woman and child able to assist in the harvest fields. He points out that: "Full utilization of all available supplies or importation offer the only remedies. Importation of a certain amount of labor able to work in crops requiring hard work of a 'stoop' nature and in the less favored localities may be necessary. Under present conditions, this must be Mexican labor.

Co-Operative Labor Bureau

"Importation of this labor strictly for agricultural purposes is possible to those able to undertake the moral and financial obligations imposed by the Department of Labor. This can be done, however, through co-operation with an association formed by the six Southern California beet sugar companies, with whom my office is co-operating.

"Fully as important as importation is the necessity of using every available home supply—high school boys, women, city dwellers, retired farmers—for such work as they can do. Farmers cannot be too forehanded in making arrangements for their help.

Napa Closes Schools

Napa county feels that her own labor problem has been largely solved by closing her schools in May. They will open early in July and continue until a farmers' committee sends out word that the school children are needed; six weeks' vacation will then be declared.

In addition one hundred and fifty business men of Napa and one hundred of St. Helena, with promise of fully as many more, have volunteered to go into the fields for a week's time on a day's notice.

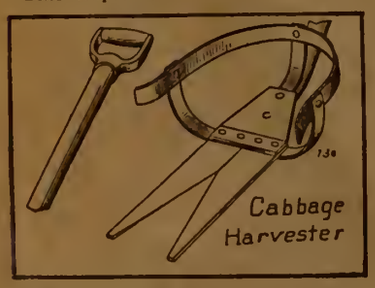
The Valley Fruit Growers' Association of Fresno is arranging to recruit several thousand people from Los Angeles and vicinity and transport them to the vineyards for the harvest period.

Vacaville, at a recent meeting, took the necessary preliminary steps to investigate the possibilities of utilizing the patriotic offers of certain women's organizations to go into the fields. Santa Clara farmers are making arrangements with the Oakland Y. M. C. A. to co-operate in bringing several hundred high school boys into their fruit harvests.

New Cabbage Harvester

A NEW cabbage harvester is reported to the Agricultural Digest by Abram E. Crane of Fairport, N. Y. It is said to work very successfully.

This implement detaches the cabbage and lifts it into the wagon box in one motion. The blades, which are dull at the point but sharp at the notch, can be removed for sharpening.



Illusive Farming Finance

Where the Federal Land Bank Falls Down

ANYBODY who is fondly nursing the delusion that the Federal Land Banks are doing anything wonderful in helping to capitalize the farmer and to aid him in speeding up food production had better awake from his pipe dream and face the flat facts.

In its January number, Orchard and Farm printed a letter that its editor had addressed to Herbert Quick of the Farm Loan Board at Washington, setting forth a plan by which the Land Banks might help to win the war by advancing more money to put under immediate cultivation the idle acres of the country and particularly of California. An example was given of a hypothetical case in the Imperial Valley, by which the Government would loan $5400 on land and improvements worth $12,000 after the farmer had worked it up to a fair state of tilth.

The Imperial Valley was chosen because it was an easy instance and because that wonderfully fertile section never has been able to get fair terms on capital borrowed for farm improvement.

Commissioner Quick sent a copy of the editor's letter to President Joyce of the Berkeley Land Bank, but Mr. Joyce, working under the ironclad rules laid down by the Farm Loan Board under the narrow provisions of the act, could do nothing to help the Imperial men.

A Flagrant Example of Delay, Linger and Wait

Still it was hoped that, because of the strong appeal made by Orchard and Farm in the interest of Imperial Valley that a point might be stretched in the making of loans in that district. It was believed that the financial needs of the ranchers there might receive a little more consideration than they had been receiving. Under the White regime at Berkeley these ranchers were practically ignored. Under the Joyce regime they were treated a little better, and it was thought that, because of the present war emergency, there might be a little loosening up of the red tape which ties the average application for a farm loan up in hard knots.

But what has happened? Read this letter from Walter E. Packard, Assistant State Leader of Farm Advisers, South, written recently from Berkeley to President Mike Liebert of the Imperial County Farm Bureau, who had been urging the financial needs of Imperial ranchers:

"Your letter was received three days ago on my return to Berkeley. I went to the bank here in Berkeley and talked with the executive committee when they were in session. It appears that it is impossible for the bank to make further loans until their engineer appraiser has reported on the irrigation and drainage conditions in the Imperial Valley.

"The bank is allowed but one man to do this work, and he has the entire district of the bank to cover. It is planned to have this man go to Imperial in August and September, which means that no loans will be made until after that time.

Must Look to Other Sources for Relief

"Under the circumstances, the only thing that can be done is to advise those who need money immediately to secure it through other sources. It is, of course, impossible to predict the report of the engineer, but I would not be at all surprised if the report advised against loans until the water question was settled or until some comprehensive plan for solution was adopted.

"The executive committee has made no ruling on this as a committee, so that no one can guess their position until the engineer appraiser has made his report."

And so, just because the Land Bank at Berkeley has ONLY ONE MAN to act as engineer appraiser, the ranchers of the Imperial Valley must wait until August or September to find out what kind of appraisement is to be made of their lands, and then they must wait some months longer to get their loans. Added to this is the pleasant assurance that it is likely that the bank will advise against the loans until the water questions are settled! Just when that will be, nobody knows.

Now, what would be the matter with advancing the loans first and waiting for the settlement of the water questions afterward? What would the Land Bank lose by it? The irrigation bonds are certified by the State, and even if this were not the case could not the Government, in the present emergency, afford to take a chance? It would have a safe lien upon the land. It could not lose, whoever the owner happened to be.

The Act Should Be Amended

But, granting that there would be considerable risk, is not the risk of a lack of food production in this crisis far worse than a possible financial loss to a Government that is spending billions upon billions to win the war?

And if the Farm Loan Act will not permit of such transactions, why, in the name of the great Jehovah and the Continental Congress, doesn't some legislator at Washington see that it is amended to meet just such a case?

Imperial Valley ranchers are recommended to the tender mercies of the private bankers and the money sharks! Have they not had ample experience with them? Is there no relief in sight?

Get busy, Mr. Congressman, and help the farmer to help Hoover to help Uncle Sam to win the war!

Are You a Smoker?

THE moral, sentimental, or social side of the tobacco question is not my affair, and for that reason I shall confine my statements as much as possible to the effects of tobacco on health and physical and mental efficiency. Indeed, I am inclined to believe that any other consideration of the use of tobacco would make little impression on any one, for health and efficiency are two of the most important phases of our life of today and, if these be safely guarded, most of the other good things of life will be added.

The argument is frequently used that famous men of master mind were not addicted to the use of tobacco. Goethe, looked upon as a demigod and their greatest poet by the Germans, Victor Hugo, that giant of intellect among the French, and his countryman Balzac are generally cited as striking examples.

Such an argument is merely one of words, for in the ranks of smokers there exist hundreds of names whose bearers were and are likewise men of the highest type of intellect: Cromwell, Tennyson, General Grant, Carlyle, Kipling, Robert Louis Stevenson—scores could be mentioned offhand, but that would prove nothing for either side of the argument.

Stevenson sometimes smoked as many as twenty cigars, at other times eighty cigarettes, a day. Whether or not this shortened his life no one can say; he died of apoplexy, but had he lived long enough he certainly would have died of consumption, a disease with which he was long afflicted.

But there is no medical evidence to show that any one ever contracted consumption through the use of tobacco, though such opinion passes as common currency in average unscientific discussions, and especially concerning the cigarette.

There is, at least, one potent reason for special discrimination against the cigarette. It is this: Owing to its cheapness and comparative mildness when singly considered, the cigarette affords too easy an opportunity for the young to indulge in the smoking of tobacco, and scientific opinion is pretty well agreed that the use of tobacco does actually retard the proper mental development of those who have not attained their physical and mental growth.

Besides, the almost universal practice of cigarette users of inhaling the smoke gives the poison in the fumes the best possible opportunity to get thoroughly into the system. Used by the young, it is fair to believe for practical purposes that tobacco hinders the development of the higher nerve centers, especially when the smoke is inhaled.—Dr. F. C. Walsh.

Handy Tool Rack

HAVE a place for every tool and keep every tool in its place. It is annoying to find tools missing and out of repair when you need them, or that they are lost and new ones must be purchased.

A Tool Rack

Repair your tools at odd times and have them in readiness when needed.

Any food consumed over and above the needs of the human body is wasted.

Want a State Farm?

Make Application Before June 12th.

IT'S only a drop in the bucket, but it counts!

To mix up the metaphor it's not only a drop in the bucket, but it's the entering wedge.

In other words, the California land demonstration of the Australian system of closer settlement is about to become an established fact. It will not solve the problem of our idle acres, but it may help.

This is the project for which Elwood Mead and Orchard and Farm have worked so long and so steadily.

The new State Land Settlement Board now offers to intending settlers 3520 acres of land recently purchased from Stanford University, and about 2500 acres purchased from adjoining owners will be open to settlement in December.

The land now offered is subdivided into fifty farms and also into 20 allotments for farm laborers. The farms are now open for inspection and will be open until June 12th. All intending purchasers must make application before 12 o'clock noon on June 12th with the State Land Settlement Board at the office of the board, 101 Agricultural Hall, University of California, Berkeley, Cal., or at the office of the board on the property. These applications must be on the form prescribed by the board.

The land is in Butte county, one mile east of Durham and seven miles southeast of Chico. It is crossed by the Northern Electric Railway and adjoins the State Highway and the Southern Pacific line.

Irrigation and Buildings

A part of the land has been ditched, leveled, and seeded, and if any settler so desires his allotment will be prepared for irrigation and cultivation by the board, the settler to pay 40 per cent of the estimated cost in cash and pay the remainder of the actual cost within twenty years, with 5 per cent interest per annum. Settlers may themselves prepare their land if they prefer.

About 500 acres have been seeded to alfalfa and 600 acres seeded to wheat and barley. The soil map of the tract shows the farm allotments which have been prepared for irrigation and on which crops are growing.

Plans of houses and other farm buildings have been prepared. The board will construct these, or other houses of designs selected by the settlers and approved by the board, on payment of 40 per cent of the estimated cost, the settler undertaking to repay the remainder of the actual cost in twenty years, with interest at the rate of 5 per cent per annum. The board will give settlers expert advice about laying out the farms.

Terms of Payment

The subdivisional plan which is at each of the board's offices shows the location and area of the different allotments with their allotment numbers and table 1 gives the price of each farm and of the improvements already made by the board thereon.

Five per cent of the cost of the land must be paid at the time of purchase and 40 per cent of the cost of the improvements. Payment of the remainder of the purchase price of land and improvements can, if desider, be made in semi-annual payments extending over twenty years, with interest at the rate of 5 per cent per annum, payments of principal and interest to be made semi-annually.

[illegible] payments will be amortized [illegible] with the table of the [illegible] Loan Board. If settlers [illegible] can [illegible] a larger initial [illegible] any number [illegible] of the principal [illegible] date after five [illegible] payment.

[illegible] the initial [illegible] of purchase [illegible] conditions [illegible] settler assumes. He is given a deed to the land when payments are completed.

Farming Advice Free

Where settlers have enough money to make needed improvements they will be expected to do this. Where necessary, improvements to enable farms to be brought into full production in the shortest possible time will be made by the board.

The superintendent will give beginners practical advice and direction regarding farm operations and aid in the organization of co-operative organizations that any one should attempt to buy one of these farm allotments who has less than $1500 capital, or a working equipment of implements and livestock which is the equivalent of such capital, and this has been fixed as the minimum amount of capital a settler will be required to have. Twenty-five hundred to $3000 is a better sum for a farm allotment of forty to eighty acres.

Capital of Farm Workers

The farm laborer can safely undertake the purchase of a two-acre farm laborer's allotment if he can make the initial payment. The semi-annual payments will be less than the rent he would have to pay for a house in town. The industrious man can save enough out of his wages to meet these payments, hence he does not need a working capital.

Intending settlers will be met at the Durham Station and shown over the property if the superintendent, George C. Kreutzer, is notified at Durham one day in advance.

Any applicant desiring further information should write to the Land Settlement Board, College of Agriculture, Berkeley, Cal.

Stampede of Stockmen

Asleep at the Switch for Years—Awake at Last

IT'S the same old story. It takes a calamity to bring about a reform. After sleeping at the switch for many years and not getting wise in time, cattlemen of California are now stampeding themselves into a series of organizations. They will send someone to Washington to protect their interests and prevent prices from going to smash.

You can't beat this situation. For concentrated stupidity, it sure takes the cake. Here is a $75,000,000 industry without an effective organization to meet a crisis! Of course, the stockmen never have taken any vigorous action to further any great reform or improvement of breeds or of ranges or changes in United States land laws, or changes in business methods.

The Case Diagnosed

Forest reserves were established against the protest of stockmen generally—especially of sheep owners, but they have proved their worth, and the legislator who would attempt to have them abolished now would be digging his political grave.

What's the matter? The livestock industry in Califarnia is in many respects on a different basis, and at some disadvantage, as compared with other States. Only about 20 per cent of California's land area is now United States public land, while Nevada has about 90 per cent, and Utah, Idaho, Oregon, Wyoming and other States have great public range districts.

In California, grazing lands must be owned outright or rented, and many ranges have been overstocked. Terms of lease are generally too short.

Commission Men Not Angels

Money and credit are not available in sufficient quantity. Most of the big fellows can take care of themselves because of their land holdings or other resources enabling them to secure necessary capital. But the little fellows are up against it. Commission men are good fellows, but not angels or philanthropists.

Farmer cattlemen cannot borrow State money as can be done in Utah, Idaho and other States. There are not enough packing houses and stockyards. Livestock shows have not been encouraged sufficiently. Some people think the big packing interests have something to do with the matter of inadequate financial assistance for farmers, because cattle loans are not popular here as they are in Chicago, Kansas City, Omaho or Denver. The United States Food administration, although doing great work, does not include many well known livestock men. Long distance shipments, lack of stock yards, high-priced grazing lands, high-priced feed and high-priced money are all factors affecting the situation.

Pretty Hard Sledding

Stockmen have made money when conditions have been normal, but when drouth and tight money periods have come, the sledding has been hard. Only a few years ago low-priced alfalfa was going a-begging and land values fell. Farmers could not borrow money to buy cattle to feed the hay to. It will certainly pay cattlemen and sheepmen to maintain strong organizations. They should be "Johnny on the spot" when the next Legislature meets, to see that their interests get a square deal. Livestock exhibits should be encouraged. A big national livestock show should be held on the Pacific Coast each winter. Forest reserves should be used to better advantage.

If private capital will not supply the necessary stockyards and packing houses, then stockmen should co-operate with grain farmers who want elevators and get State action.

What McAdoo Will Do

The railroad administration will surely not encourage unnecessary shipments of livestock to eastern centers and packing house products back to the Pacific Coast. Uncle Sam's locomotives will be too busy to do much unnecesary work. Nevada, Arizona and New Mexico can send their fat stock to Salt Lake, Denver, Kansas City and Omaha to supply the East, and their poor stock can be fattened in our Imperial and San Joaquin Valleys.

California packing houses should handle all California cattle, sheep and hogs, and the adjoining States can be supplied with packing house products from California to better advantage than from Missouri River centers. California has had, has now and will continue to have its own peculiar problems for cattle, sheep and hog raisers to wrestle with, and certainly the success of fruit and raisin growers, through organization and co-operation, should furnish the necessary object lesson to enable livestock owners to protect themselves and avoid spasmodic efforts such as are now considered necessary. C. W. E.

Sacramento, Cal., May 25.

Great Single Tax Debate

THE Single Taxers are preparing for a big drive this summer and fall. They polled over 260,000 votes in California in 1916, and they say that they will poll 70,000 more at the next election and win the State.

Do the farmers want taxes levied on land values alone? What are the arguments for and against Single Tax?

Orchard and Farm announces a great debate on the question.

Would Single Tax Aid or Injure the Farmer?

Luke North, vice president of the National Association known as "The Great Adventure for Single Tax," will put the case for the Henry George theorists in July Orchard and Farm, and a leading Anti-Single Taxer, will reply. In the August number Mr. North will argue against the opponent of the George theory and in turn will be answered by the Anti-Single Taxer. And so the debate will continue back and forth up to election time, the last installment to be published in the November Orchard and Farm.

Anyone who owns land will of course be affected by the proposed Single Tax amendment to the Constitution of California and, therefore, will want to read every word of this great debate.

All voters, and particularly students of political economy, will also find the controversy a highly interesting and educational one.

Being vital to our farmers, the facts set forth in this debate will be closely perused by them.

If you are not a subscriber to Orchard and Farm send 25 cents now to this office and thus secure all the numbers containing this tremendously important feature—a liberal Single Tax education in itself. Do this today!

Money in Stock Feeding

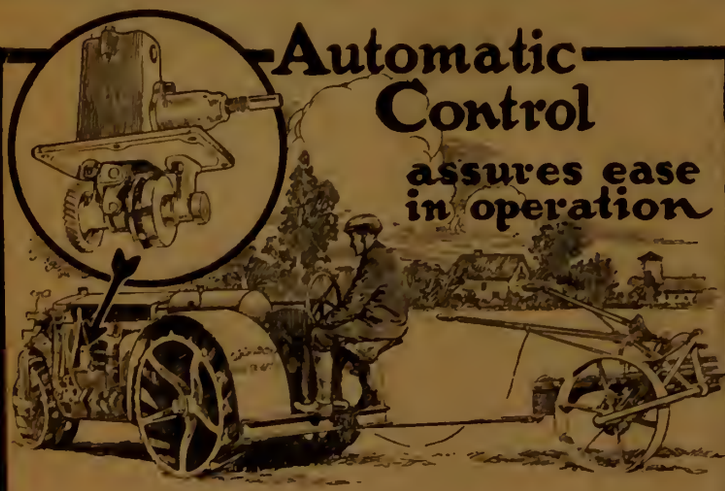
A RECENT bank review covering the banks of five counties in Kansas would indicate that the farmers are making a good profit from the livestock business in spite of the increased cost of feeds and other supplies. This bank review covered the best agricultural counties in the State and showed that considering the bank deposits made in the past three years, their wealth had increased over two hundred per cent. They included only those counties where the occupation was entirely agricultural. There were no mines or factories. Most of the farmers are engaged in stock feeding, raising their own feeds and feeding it outright on the land.

Model Bean Cultivator

KILLEFER QUALITY — KILLEFER EFFICIENCY

This cultivator, like most of our implements has been developed at the request of Dealers and Ranchers for a strong, simply controlled cultivator, capable of doing their work deeper and better than possible with the light Eastern-made tools. The frame is one piece of high carbon steel without joints to work loose or sag and holds the wheels always true and in line with the rest of the machine. The double frame bar gives ample clearance between the standards and eliminates the tendency to clog in trashy ground. This frame bar has a double lifting device which holds it rigidly on both sides. A man's weight on the extreme end will not spring it out of line. The seat is set far enough back to give an unobstructed view of the rows and the foot control is very easy on the driver. Manufactured by

THE KILLEFER MANUFACTURING COMPANY
2209-21 Santa Fe Ave., Los Angeles, Cal.



Simplicity in operation is made possible by the use of a Ball and Disc Type Governor which gives a very sensitive and satisfactory control to

SAMSON SIEVE-GRIP TRACTORS

GMC TRACTORS — GMC TRACTORS

Under varying loads our

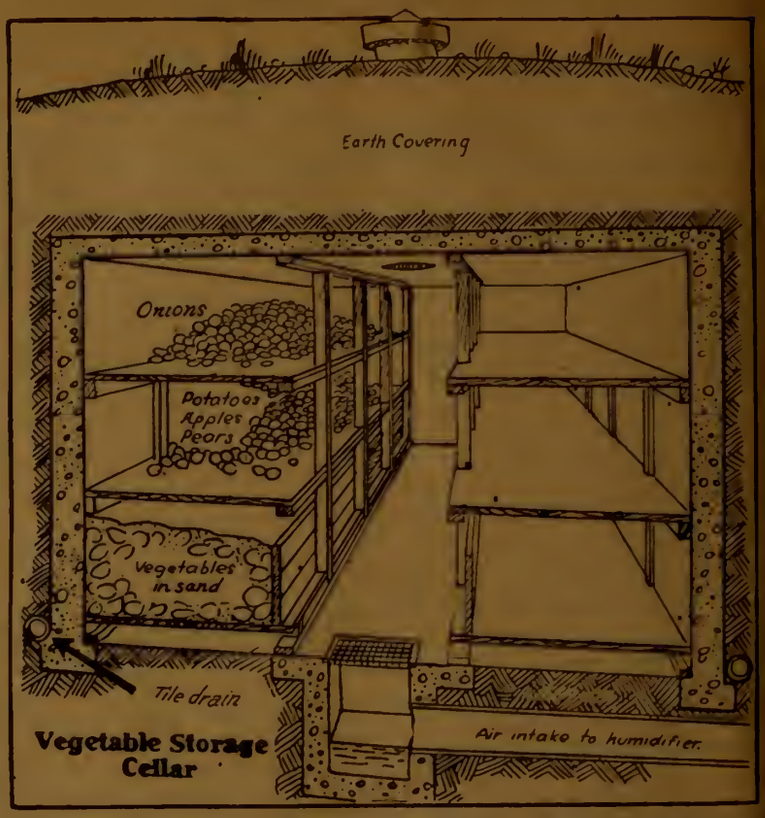
AUTOMATIC CONTROL

--- Assures greatest ease in handling

--- Gives uniform motor speed

SAMSON SIEVE-GRIP TRACTOR CO.
(Division of General Motors Corporation)
Stockton, California

Good Vegetable Storehouse



Vegetable Storage Cellar

IN making a study of vegetable storage one is impressed first by the great number of words used by the writers on the subject to cloak a very few ideas. It would seem the authors have felt called upon to say something, and this when they know nothing or very little.

Vegetable storage houses or cellars are to be found all over the country, and the idea is not a new one. Few owners, if any, of such storages have thought it worth while to study their cellars even in the most superficial manner, and no one has made careful tests with instruments of precision to discover correlations of keeping and temperature, humidity and ventilation.

The unusual economic conditions have forced men to think of food conservation, and in the search for information concerning the storage of vegetables it has been discovered that residents of the town of Lake Forest, Ill., had for years used storage cellars with great success. Fortunately what has been done at Lake Forest has been made available to every interested person, and the most encouraging voice and the most helpful efforts are coming from that community

A Lake Forest Storehouse.

We present this month a small vegetable storage cellar for use on the small estate.

In such a cellar roots and fruits have been held in storage well into the springtime and have come out in splendid condition. Carrots, parsnips, beets, rutabagas, turnips, are stored in sand in a bin on the dirt floor of the cellar. The potato is stored in shallow slatted bins, raised above the floor. Apples and pears are stored in the same kind of shallow slatted bins.

These vegetables and fruits are kept at a temperature running from 33 degrees to 40 degrees Fahrenheit, with the air well laden with moisture.

Cold air is brought in at one end of the cellar, at a point near the floor, and removed through an opening in the roof in the opposite end of the cellar.

Celery is stored in moist sand like the carrots and other vegetables.

While onions are shown on the top shelf, over the potatoes, it has been determined this vegetable must be stored in a cold, dry room, and this necessitates a partition in the cellar and the addition of another air inlet and outlet. Pumpkins and squashes require cold (not below 45 degrees), dry storage.

The operation of the cellar is simple: Humidification of the air is secured by the well of water (called "humidifier") sunk in the floor of the cellar and by the breathing of the stored vegetables. The dirt floor of the cellar is covered to the depth of several inches with clean sand and this sand may be sprinkled with water which will be given up to the surrounding air.

Keeps Food All Winter.

The cellar is filled with cold air from time to time by the opening and closing of the intake and outlet air ducts.

It is possible to maintain the supply of crisp, fine-tasting vegetables through the winter and well into the early summer by the use of vegetable storage cellar

The vegetable storage cellar is for the farmer on the land, the community in the town or small city, public institutions, like hospital, reformitory institutions; country clubs, college commons, employes of big corporations, army posts and cantonments

The Things That Count

NOT what we have, but what we use;
Not what we see, but what we choose
These are the things that mar or bless
The sum of human happiness.

The things near by, not things afar
Not what we seem, but what we are
These are the things that make or break,
That give the heart its joy or ache

Not what seems fair, but what is true
Not what we dream, but what we do
These are the things that shape life's gems,
Like stars, in Fortune's diadems

Not as we take, but as we give;
Not as we pray, but as we live—
These are the things that make for peace,
Both now and after time shall cease.

—Cincinnati Times

Cut Your Feed Costs 1/3rd!

Write For Amazing NEW SMALLEY Book FREE!

Thousands are filling their Silos quicker! easier! cheaper!—with richer, better cut ensilage than ever! With the famous patented Recutting Attachment, they're making dandy feeds, turning roughage into tempting meal, fattening hogs, cattle, sheep, poultry, at a 15% to 80% cost-reduction! Think of it!

Makes wonderful combination meal-feeds from clover, corn stalks, snapped corn, bean straw, pea vines, oats, rye—Cracks peas, corn, beans!—Handles leaves, stem and all! Saves waste—doesn't injure color of hay!

Meal capacities range from 1080 to 2340 lbs. per hour (600 to 900 lbs. meal per hour with *Junior Mill* driven by 6 to 8 h. p. engine).

Smalley Silo Filler
Seven Sizes

Makes silo filling as easy as A B C! Grip-hook Force-feed TABLE and paddle roller automatically feeds the powerful, swiftly revolving, lawn-mower-like knives!—turns out fine cut ensilage of unbeatable richness—increases silo tonnage—pays for itself quickly. Patented low-speed one-pulley CHAIN DRIVE Blower. Saves 1-5 to 1-4 power costs. Ends belt stoppage, belt troubles—is faster, cleaner—saves time, money, trouble. Blower and cutter work independently. Speed up fan—or slow it down!—speed of knife shaft remains the same. Four sizes of Alfalfa cutters with top apron. Book explains all. It's FREE—with samples of meal. Write Pacific Implement Co., Gen. Agents San Francisco, Cal.

Smalley Manufacturing Co.
Dept. 62. Manitowoc, Wis.

Two-Horse Brand Boys' Overalls (Genuine Indigo Dyed)

Are Just Like "Dad's"

Made of the same kind of material, with the same care, the best looking, longest wearing and cost no more than ordinary kinds.

Banded bib and swinging white drill pockets (not the old style patch pockets that so quickly wear through.)

Look for this label—take no others

A new pair FREE if they rip

Awarded GRAND PRIZE at the P.P.I.E.

Made and Guaranteed by
Levi Strauss & Co., San Francisco

Mfrs. of "*Freedom-Alls*"
the new garment for women

THE SELF-OILING WINDMILL

has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load. We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

AERMOTOR CO., 2500 Twelfth St., Chicago

Bigger Crops—Analyze Your Soil

I can show you the best uses to which your land can be put. I examine soil with the view of telling farmers what crops can be grown most abundantly. Definite knowledge of physical and chemical character of land, knowledge of origin, composition, properties and functions of soil and relations of crops will enable you to plant for far greater crop production. Every owner of land should have this information. Let me help you. Write today for instructions as to taking samples for analysis in my laboratory.

MARK WALKER,
Chemist, 211 West First St.,
Los Angeles, Cal.

FISH

Salmon in brine, 100 lbs., $11.00. Shipping weight, 175 pounds. [illegible], 20 lbs., $3.25. Dried [illegible] $1.75. T. A. Beard, [illegible] Seattle, Wash.

In the Garden

Make Your Own Roller

IF YOU can't afford to buy a roller, make your own. Get a 24-inch glazed sewer or drain tile, shown as Fig. 1; carefully break or knock

Fig. 1—Sewer Pipe

off the flange (Fig. 2), set the tile on end and fasten a pipe or iron rod into the ground in the direct center of

Fig. 2—Breaking off Flange

the tile (Fig. 3). Fill the space round this pipe inside the tile with a mixture of concrete, using two parts of

Fig. 3—Tile on end ready to be filled with Concrete

sand, one part cement, and one part of stone or gravel. Fasten a steering pole or draw-bar to the pipe run-

Fig. 4—Home-made Roller Completed

ning through the center of the tile and you will have a serviceable roller (Fig. 4).

Spray for Tomatoes

SINCE writing the note about tomato worms attacking tomatoes seriously in the San Joaquin valley the writer has heard of excellent results in preventing injury by spraying. Pest control has made California fruit famous. While spraying tomatoes for worms is doubtless a new thing on a large scale here, if it proves a success our fine, long growing season will do much to make tomatoes a very important crop.—D. J. W.

The industrious farmer is about the only person not particularly affected by the daylight saving plan. He always has been in the habit of using all the daylight there was, and stretching it out at both ends by the use of a lantern.

DISSTON SAWS AND TOOLS

A $200,000,000 Woodlot

THE farmers of this country own a $200,000,000 woodlot. How much money will you make on *your* woodlot? Coal will be mighty scarce next winter. Many a factory, many a family will have to use wood. True, as sure as you're a foot high. Sell all the wood you can cut. Use a Disston Cross-Cut Saw for felling and for cutting cordwood lengths.

The greenest or hardest of timber can't make a Disston Cross-Cut Saw quit. It stands up to the hardest kind of work and then comes back for *more*. Thrust pressure won't buckle it. Its blade, of Disston Crucible Steel, delivers long years of service. It has the right *temper*. It has the right hardness. The steel in Disston Saws or Tools is made right here in our own plant, because no other kind would do.

We make many patterns of Disston Cross-Cut Saws for one man or two. These can be had in wider or narrower blades with the tooth you like best. Find the name Disston on saws and tools and you'll know you're getting quality through and through. Disston Cross-Cut Saws are the choice of the best woodsmen, as Disston Handsaws are the choice of three out of four carpenters.

Modern farming demands Disston Saws and Tools. Sold by all progressive hardware dealers the world over. Send today for free copy of "Disston Saws and Tools for the Farm."

HENRY DISSTON & SONS, Inc. DISSTON
PHILADELPHIA, PA., U. S. A.

Disston Files are as well known for quality as Disston Saws

Electric Light for Your Farm

Uni-Lectric lighting plant generates standard 110-volt direct current; operates from one to fifty lights, electric motor, electric iron, vacuum cleaner, electric toaster, force pump, churn, washing machine, etc. No Batteries—No Switchboard—and a better machine for less money. High speed gasoline motor, generator and automatic governor, all complete in one small, compact unit. Uses standard lamps and fixtures. Simple, easily installed, dependable, economical. Costs less than other systems to buy and to operate.

Write today for full description and low price.

KARL A. HEDBERG, ELECTRICAL ENGINEERS
104½ Clay St., San Francisco, Cal.

Don't Wear a Truss

BROOKS' APPLIANCE, the modern scientific invention, the wonderful new discovery that relieves rupture will be sent on trial. No obnoxious springs or pads. Has automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lies. Durable, cheap. **Sent on trial to prove it.** Protected by U. S. patents. Catalogue and measure blanks mailed free. Send name and address today.

C. E. BROOKS, 106 State Street, Marshall, Mich.

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LOS ANGELES
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Cafe and Restaurant
Garage in connection
Take Taxi at Station at our expense

LEE HOLLADAY Pres.
GEO. A. COLLINS Secy.

Save $5.00 a Day

When help is scarce and wages high, you can save money by using a

Louden Power Hoist

A plain, common-sense machine, built to handle big loads easily. Saves time and money. Can be used with any kind of power. Anybody can operate it. Does the work of both a team and a man, and does it in half the time.

The Louden Balance Grapple HAY FORK

With its five-foot spread and its 24-inch tines, this fork lifts an enormous load, binds it tight, drops it clean, and spreads it well in the mow. Leaves no litterings to be cleaned up with a pitchfork. Three or four forkfuls clean the rack.

Perfectly balanced—a feature of utmost importance. The tines are of finely tempered steel, slender but strong. Will not bend or break under heavy loads.

Free Book of Barn Plans

112 pages of practical barn plans. Profusely illustrated. Packed with valuable information for the dairyman. Also, complete catalog of Louden Barn Equipment. Both books free.

California Hydraulic Engineering and Supply Co.

68 Fremont St. San Francisco — 425 E. Third St. Los Angeles

The 100% Silo

is the silo that's built of California Redwood. Think up all the good points a silo material should have—you'll find *every one of them* in

California Redwood

Resists rot and fire

Permanent—contains a natural preservative that prevents decay. Not affected by sun, rain or violent changes of weather.

Will not shrink, warp or swell, when properly seasoned.

Non-conducting—Redwood retains the heat necessary for perfect fermentation of silage, keeps out cold, prevents freezing.

Fire-resistant, because non-resinous.

There are many other important advantages of Redwood for silos—in fact for *all* exterior and interior building construction. "California Redwood on the Farm" contains the whole story. Ask us for it. It's free.

If your local lumber dealer does not carry Redwood send us his name and we will arrange for him to get it for you.

California Redwood Association
771 Exposition Bldg.
San Francisco, California

Ask for the Child's Story of the "Big Trees" of California—there's a copy for every child in the nation.

Going to Plant 'Gyp Corn?

Here Are Some Valuable Suggestions

WITH the high prices of grains and the necessity for supplying ourselves and our allies with both cereals and pork it is probable that a large amount of Egyptian corn will be planted this coming summer.

There are in California three main varieties which will be chosen, and the following observations based on experiences in Tulare county, but appropriate for nearly all interior California, will suggest which of the three will prove most profitable to select.

The white Egyptian corn is the standard variety and in a way has given its name to the other varieties so that "gyp corn" is likely to mean any of the grain sorghums. Of the three varieties named it appears under most conditions here to be the poorest by a big margin. The stalks are wood and of little value for fodder, heads are irregular in size, necks frequently so thick and hard that harvesting is slow, and finally, the grain shells out so easily that a man stands a good chance to lose a good part of his crop unless it is threshed quickly. This is the experience of the writer. It may be due in part to the seed having run out more or less, but it seems to be the experience of nearly everybody else also.

Feterita for Fodder

This is rather a new variety for the State, but one that has made very rapid progress. The heads are straight and slender, the grains are much rounder than those of Egyptian corn and have something of a bluish cast.

From experience and observation the writer would say that much of its popularity appears to be due to its newness, for people often think that new varieties are better than old. However, even at that as a rule it seems to be superior to the ordinary white Egyptian.

A very favorable characteristic is the way the grains stay in the heads, for practically nothing is lost by shelling out.

Birds like it, showing that it is palatable, but they will not waste as much as they do of Egyptian corn.

An extremely important feature of feterita is the fodder, which is abundant, while the stems are usually so thin, soft and sweet that stock get far better use of it than they do if of either Egyptian corn or milo. On the other hand the writer believes, from the amount of grain in the bin, that feterita appears in the field to give a much larger yield of grain than it actually will produce, making people overestimate its value. In one way it is pleasant to harvest, but if growth is very vigorous, the plants are so spreading that harvesting is slow

Dwarf Milo

Of the three varieties first named, milo, or dwarf milo, completely outclasses the others in real merit. I had last year comparatively little milo, planting it partly because some seed was in the planter, and partly because I secured some first class seed, and the small amount grown far outyielded equal amounts of either feterita or Egyptian corn. Likewise the heads were round, solid, very heavy, and even the smaller ones of nice size and well developed. Likewise harvesting is very much easier and very much quicker than either of the other varieties, and there is no loss in the grains shelling out of the head.

Part of these advantages may have been due to having first class seed of milo and common seed of the others, but except for occasional fields of poor milo in this section milo appeared to run far ahead of the others in all the ways named.

Objections are made that the price is lower than that of the others and that it may not be quite as good a feed as the others. The price is so close to that of the others and the value as feed so near that of the others that the difference is insignificant in comparison with its other advantages. Likewise the heads are so solid and well filled that when buying, or using the grain in the head I would feel far more satisfied to have milo than either of the other two.

Get Good Seed

Since two pounds or so of grain will plant an acre the price of seed is not to be considered, particularly when there is such an immense difference in the results between good seed and common seed. All the trouble a man can go to in getting good seed is more than justified. There seems to be some poor milo seed used.

A word might be said of some of the crosses. In my field were quite a large number of crossbred plants, some crossed between milo and Egyptian corn, in appearance, some between feterita and something else, and a few crossed with sweet sorghum. With few exceptions they made a spectacular growth and looked fine, but when harvest time came the stalks were mostly too big and too woody for fodder and the grain too scant and poor to be worth much for feed. Then after curing, it looked worse yet, and I would say, steer clear of crossbred sorghums.

An important point in variety selection has to do with moisture supplies. On a cattle ranch in the hills near by some corn is grown on bottom lands every year by dry farming. In a very favorable year milo proves best of all, but when moisture is a little scant it will be a total failure when white Egyptian proves completely satisfactory.

Bad for Land

A thing to be considered in growing grain sorghums is the condition of the land when the crop is off. The root bunches are a pest in preparing the land for the next crop. Also the soil seems to run together, to take water poorly and to produce less the next year than it would if something besides sorghum had been grown. Beans, on the other hand, both enrich it and make it mellow.

In choosing a crop therefore, if beans will do at all well, they will prove at present prices far more profitable than gyp corn and do better by the soil.

As compared with Indian corn the writer cannot speak from experience save that for poultry—now that wheat cannot be fed to poultry—gyp corn is better in summer than Indian corn possibly could be, although for [illegible] Indian corn is much superior to gyp corn. Also if the soil is not of the best and if irrigation is irregular or unsatisfactory, gyp corn will make a fair crop, while Indian corn or beans would fail. Otherwise Indian corn on rich soil properly irrigated gives excellent results.

Indian corn is bothered by the corn ear worm, but the loss in that quarter is not to be compared with loss of grain by birds in gyp corn, for Indian corn is covered by a husk and gyp corn is open to air and birds.

Furthermore an extremely important item in growing gyp corn is the way it is determined to sweat and mold in the bin. Given a few showers and a cool fall and the gyp corn is a terror to get harvested and stored properly. Considering the labor shortage this trouble is likely to be increased. In comparing both Indian and gyp corn grown on the same land in 1916, when frost and heavy early rains largely ruined both, and also, the writer would favor Indian corn on all good, properly irrigated land, or beans instead of either, and leave gyp corn only to land for some reason not up to the best standard. And in growing gyp corn he would recommend in most cases dwarf milo far above the other varieties and give attention to seed selection when milo variety is selected.

Big Creamery Deal

ONE of the most important dairy transactions ever consummated in California took place recently when the Milk Producers' Association of Central California purchased the big Modesto creamery described in Orchard and Farm several months ago by James MacDonald.

This purchase was consummated after the directors had made a very thorough investigation of different creameries in the locality embraced by the Milk Producers' Association of Central California, which included the counties of Alameda, Contra Costa, Santa Clara, San Joaquin and Stanislaus, with the view of making new installation or the purchasing of an already established creamery.

The creamery was promoted by the Modesto Board of Trade and has had for its board of directors some of the most prominent citizens of Stanislaus county.

For the past three months the association has given a good deal of thought toward the planning for those members of the association that produce butter fat for butter purposes, and those who produce whole milk for other products manufactured in this territory. The first step along these lines was the transfer of the Modesto creamery, which aside from the manufacture of butter has a modern equipped cheese and caseine factory.

H. A. Sellers, president, a large dairyman of the Knightsen section, is the president of the Milk Producers' Asosciation. C. H. Geer of Turlock is vice president. Karl A. Gotshall is the secretary and treasurer of the association. Mr. Gotshall is vice president of the Bank of Ripon and one of the State's prominent breeders of pure bred Holstein cattle.

The other members of the board are John H. Balra of El Centro, Mr. Enos of the Modesto section, Mr. Hutchins of Turlock, Guy H. Miller of Modesto, J. M. Aggeler of Roberts Island, Mr. Standish of San Jose, Mr. Coopman of Pleasanton and Mr. Cardosa of the Oakland district.

Sheep Killed by Dogs

INVESTIGATION by the United States Department of Agriculture among sheep owners in 15 States east of the Rocky Mountains shows that out of a total of 6,836,492 sheep in the 502 counties reporting, 34,683 were killed by dogs in one year (1913) and were paid for by the counties. At the same rate of loss in other farm States the total annual destruction of sheep by dogs would be 107,760.

"But these figures are based only upon the number actually paid for, and it is more than probable that the true losses far exceed this," says Farmers' Bulletin 935, "The Sheep-Killing Dog." "It is known that many sheep are killed which are never reported to the county official.

"In 1913 crop reports in 36 farm States submitted estimates which showed that the number of sheep in these States could be increased 150 per cent without displacing other livestock. Such an increase would place approximately 34,000,000 more sheep in these States than there are now. Of 1411 answers received to the question as to whether sheep raising is profitable in the farm States, 887 answered 'Yes.' Of 894 answers as to the causes preventing increase in the numbers of sheep, 531 said 'Dogs.'"

Farm State laws are advocated in the bulletin as being the most effective method of dealing with the sheep-killing dog.

[illegible] of livestock will [illegible] valley every Tuesday [illegible] in Kansas City in time [illegible] following

System on Ranch

(Continued from Page 5)

to have been needed in irrigating and the results were a third less than they should have been. Likewise, seeing what was likely to happen I planted Egyptian corn that could stand hard conditions in place of beans which was the crop at first intended, and the corn brought in just about half as much per acre as did pink beans on another part of the place.

So I had to plant a poor-paying instead of a good-paying crop, had nearly twice as much work as I should have had, and got poorer results from what was planted than I would if proper judgment had been used in plowing. If in the spring the plowing had been toward the trees instead of away from them everything would have been about right.

Proper plowing on irrigated lands can be done by using the same lands each time, but throwing the soil one way one time and the other way the next time and, usually, making only small lands and taking the plow across the ends of the lands idle; that is, plowing back and forth instead of around and around. Too much care cannot be taken to get land smooth if it is to be irrigated, and keeping it smooth.

There is another thing worth speaking of in land leveling, and that is the foolishness of using a two-horse scraper instead of a four-horse, whenever a four-horse scraper can be used.

This is the way it works out. Four horses will move a third more earth per horse than two horses, or say a fourth more, so that while two horses are moving two yards, four horses will move five yards of earth. A man may count his time at $3 a day, and each horse worth 75 cents a day, so while he is working with a two-horse scraper it costs $4.50 to get a day's work done.

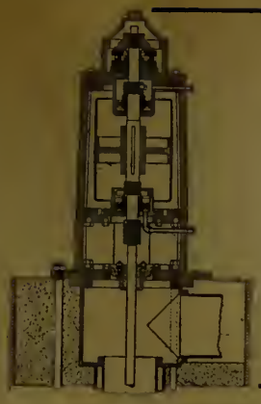
Let him hire two horses more and a scraper for them. The cost then is $3.00, plus $1.50 for his own team; plus $1.50 for a hired team, or $6.00 per day, but he gets more than twice as much work done, or $11.25 worth of work as compared with the $4.50 of two horses, and the extra expense is only $1.50. So, by spending $1.50 per day to rent a team a man can get two days' work in one, plus enough extra work to pay for hire of the extra team. This is plain common sense. It is an illustration of the difference of being penny wise and pound foolish, or pound wise by spending a few pennies in the right place.

For example, in leveling the place where I am now located, I saw the difference between two-horse work and four-horse work; went to a neighbor who had a good team that was working only now and then, got the use of it for less than 75 cents a day, plus their feed; borrowed a four-horse scraper and finished up the leveling in less than half the time that would be needed with two horses, and at too little extra expense to count.—D. J. Whitney, Exeter, Cal.

Fine Unpatriotic Farmers

THE British Food Production Department is taking drastic steps to see that the country does not suffer from the neglect and indifference of unpatriotic farmers. Farms which remain under-cultivated in spite of pressure from the country agricultural committees are being taken over and cultivated by the committees, usually with war-prisoner labor. The central committee reports that "most farmers are doing their best, but there are some bad exceptions."

At Buckingham, the local court, in reply to a request from the Board of Agriculture, fined a negligent farmer $300 and ordered him to vacate his farm in fourteen days. On the same day, the Irish Department of Agriculture confiscated 514 acres of land from Lord Ashtown.



BEST PUMP ON EARTH

The P. K. Wood Deep Well Propeller Pump.

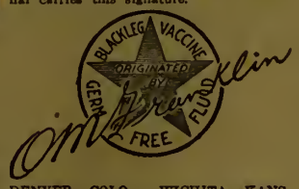
A new type of construction, embracing all the efficient features of the old type that comply with the laws of hydraulics, thereby avoiding all unnecessary friction and producing the highest possible efficiency. The propellers are encased in cast iron cylinders, with cast in guides, bushed with interchangeable bronze bushing, and provided with our patented sand-proof packing collars. Assembled ready to insert into the well. A NO PIT pump. Easily installed. The head is strong and compact. Only 18 inches from foundation to center of pulley. Anti-friction bearings throughout. Self-lubricating. None of the grease can possibly escape, and is supplied with sufficient for 3 to 4 months when it leaves the factory. Write for catalog.

WOOD PUMP CO. 937 N. Main St., Los Angeles, Cal.

Kansas Germ-Free Fluid Vaccine for

BLACKLEG

This seal is our word of honor and your protection. If it is not on the label of every bottle don't use it. Only the original carries this signature.



DENVER, COLO. WICHITA, KANS. AMARILLO, TEX.

Made by Dr. O. M. Franklin, the Originator

Holds the record of immunizing more than a Half Million Calves against Blackleg, with—only one handling of each calf—has stood the test of time—easy and safe to use—cannot give the disease to calves or spread it in pastures.

Leading cattlemen use it exclusively and recommend it to their friends—ask any of them or write to the nearest office for references and free Booklet on Blackleg.

The Kansas Blackleg Serum Co.
401 Bryson Bldg., Los Angeles, Cal.

A Match-Lighting Gasoline Lantern

No torch needed. Lights with a match like the old time oil lantern, but makes and burns its own gas from common gasoline, giving a brilliant, steady, white light of 300 candle power. Most Brilliant Light Made. Brighter than the brightest electric bulb. More light than 20 oil lanterns. Cheapest and best light made. Costs less than one-third of a cent per hour. Safer than the safest oil lantern. The

Coleman Quick-Lite

No wicks to trim—No globes to wash. No dirt or grease, no glare or flicker. Absolutely safe. Fuel can't spill—no danger if tipped over in straw. Will last a lifetime. Address our office for catalogue No. 10.

Cole Lite & Sales Co., 1216-18-20 E. 41st St., Los Angeles, Cal. Demonstration Room, 246 S. Spring St.

Only one machine, capacity 50 lights, for the astoundingly low price of $175. Write or see Mr. Ledbetter.

5 Gallons Gasoline Furnished Light and Heat for 31 Days

"Utility Gas machine in operation 31 days and have not yet consumed 5 gallons of 18-cent gasoline. We have had to give it no attention except to turn on the current. The one thing that impresses us more than any other is the fact that it is such an economical fuel."—G. C. Carlisle, Delano, Cal.

THE UTILITY GAS MACHINE, an English invention, is so constructed that 98 per cent of the new gas is ordinary air and only 2 per cent gasoline vapor; just one-fiftieth of the new gas is gasoline vapor; think of it; a soft, white light, void of any rays which are injurious to the eyes, and an intensely hot blue flame, free from any carbon deposits, which may be used with any type of range, stove, radiator or heater; it is simply wonderful.

THE BEACON LIGHT CO., 636 S. Hill St., Los Angeles, Cal.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

Experts Say

"ZEROLENE IS BETTER"

—because it holds better compression, gives better protection to the moving parts and deposits less carbon.

Zerolene is the correct oil for *all types* of automobile engines—the correct oil for your automobile.

Get our Lubrication Chart showing the correct consistency for your car.

STANDARD OIL COMPANY (California)

The "T"-Head type engine, illustrated here, like all *internal combustion engines*, requires an oil that holds its lubricating qualities at cylinder heat, burns clean in the cylinders and goes out with exhaust. Zerolene fills these requirements perfectly, *because it is correctly refined from selected California asphalt-base crude.*

ZEROLENE

The Standard Oil for Motor Cars

Auto Trailers $85 and up. 2 or 4-wheel type built to any capacity.
Let us figure with you in making over your old touring car into a 2 or 3-ton truck.
Truck attachments $350 and up. Made for any automobile up to 3-ton capacity.
Made in San Francisco. Write for descriptive circular.
Territory Open for Agents.

RELIANCE TRAILER & TRUCK CO., INC.
30 Eighth Street, San Francisco, Cal.

PINTO BEANS

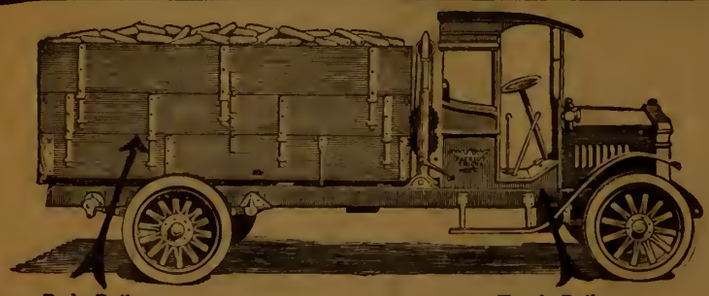
Wonderful crop; everybody makes big money; crop in New Mexico, 1917, averaged $90 per acre; California farmers can do as well and are planting a big acreage. The Pinto Bean is a dry land product; little moisture needed; no irrigation required; preferable to many other kinds, as the Pinto produces bigger yields. Pintos are of greater food value. Order your needs at once. Send for our catalog. We are headquarters for all kinds of commercial beans.

AGGELER & MUSSER SEED CO.
6th and Alameda Sts., Los Angeles, Cal.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

5 Cents an Acre, Cash

Texas school lands for sale by the State at $3 an acre, 5c an acre cash, and no more for 40 years, but 3 per cent interest; send 5c postage for further information. INVESTOR PUB. CO., Dept. 1 San Antonio Texas



Body Built for Country Loads — Truck Built for Country Roads

PATRIOT FARM TRUCK

Built for Country Roads—Built for Country Loads

There is real need for motor trucks on the farm—to speed up transportation—

To bring better markets nearer—

To master bad roads—

To save high-priced horses—

But—the farmers have not bought them to any great extent. Why? The reason is, there has never before been a real Farm Motor Truck on the market.

Those that have been sold were built for the paved streets of the cities—not the soft roads and fields of the country.

The Patriot Is the First Motor Truck Built for Farm Work

Or—they have been mere cheap units to combine with worn-out, low-priced, low-powered cars—forming makeshift trucks that never were expected to deliver real farm service.

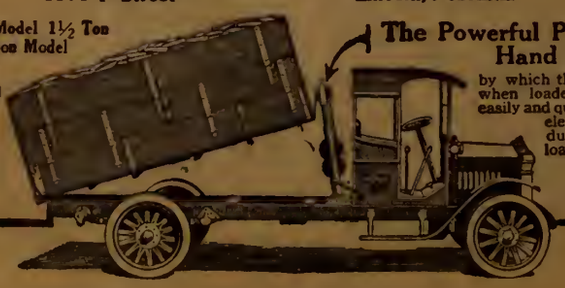
But now—the farmer has a real truck—built in the center of Agricultural America—by experienced truck and body makers, in a new, complete and modern factory—and built for farm service.

Every farmer with 160 acres or more should find out what a Patriot Farm Truck will save. Write for information.

HEBB MOTORS COMPANY
Manufacturers of Patriot Farm Trucks
1371 P Street — Lincoln, Nebraska

Lincoln Model 1½ Ton
Washington Model 2½ Ton
Continental Motor
Internal Gear and Worm Drive

The Powerful Patriot Hand Hoist
by which the body, when loaded, may easily and quickly be elevated to dump its load.



(9)

Sunflowers

He Deserves Praise

Willie had swallowed a penny, and his mother was in a state of much alarm.

"Helen," she called to her sister in the next room, "send for a doctor, Willie has swallowed a penny."

"No, mamma," he interposed, "send for the minister."

"The minister!" exclaimed the mother.

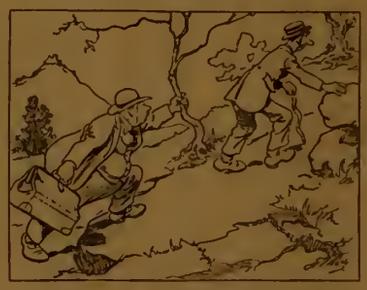
"Yes, because papa says our minister can get money out of anybody."

A CHEERFUL AND OBLIGING GUIDE

How to Find People You Are Looking for in a Hill Country.

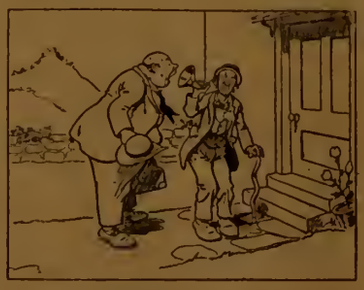
1—Stout Gentleman—I say, can you direct me to Mr. Perkins' house?
Lean Gentleman—Huh?

2—Stout Gent—(repeats).
L. G.—Come along with me.

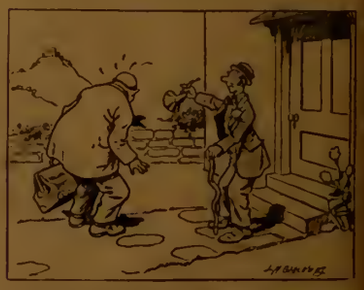


3—S. G.—Say, is it much further?
L. G.—The country sure does need rain.

4—S. G. . Puff, I'm dying.
L. G.—I says to my wife only the other day, "Pamela," says I—



5—S. G.—Is this Mr. Perkins' house?



6—L. G.—Who? Oh, Mr Perkins? Why, he lives over there top of that hill.

A Royal Oversight

"That's funny."
"What?"
"The Kaiser hasn't announced his intention of eating his Christmas dinner in Washington."

Tight Wads

A young clergyman was complaining to a friend that his congregation was made up of "tight-wads."

"They are so stingy," he said, "that when I ask them to sing 'Old Hundred,' they sing 'The Ninety and Nine.'"

Correcting Her

"I thought I should laugh right out," remarked Uncle Hiram, "when at the circus Mrs. Botts called an animal a seraph. Of course she meant a giraffe; but the fun of it was it wasn't a giraffe. It was a camomile."

Made a "Ringer"

On missionary day in the Sunday school the little boys and girls were to march up front, drop their contributions into the basket, and recite an appropriate Scripture verse. All went well until little Johnny, who had got his verse from the wrong book of proverbs, marched proudly to the front, dropped his money into the receptacle, then turned around to the audience and gayly recited, "A fool and his money are soon parted."

Merciful

"Let's go to the movies and kill time."

"I've too much respect for time to execute it in that manner."

Conundrum

Why is a hen immortal?
Because her son never sets

Friend Indeed

"Did you send flowers to the funeral?"

"No, I sent a fire extinguisher."

Where Attention Was Needed

A woman from the country and her small son were driving to town when a huge automobile bore down upon them.

The horse was badly frightened and began to prance, whereupon the woman leaped down and waved wildly to the chauffeur, screaming at the top of her voice.

The chauffeur stopped the car and offered to help get the horse past.

"That's all right," said the boy who remained composedly in the carriage. "I can manage the horse. You just lead mother past."

Over-the-Top

Cheer Up Your Soldier!

EVERY soldier wants to receive letters from home. They should be frequent, cheerful, hopeful and appreciative of the sacrifice that he is making for his country. They should be full of family incidents and cheerful home gossip. They should encourage him by giving full confidence that his family and his friends stand behind him in the great enterprise he has undertaken.

The value of such letters to soldiers is beyond estimate. The harm that discouraging letters from home do to him is clearly indicated by reports at the Adjutant General's office. Here are some extracts from recent reports of division commanders:

"I find that many of the families of the men write to them of unsatisfactory conditions at home, sickness of relatives, and how much various members of the family wish to see the soldier. These letters, so far as sickness, etc., are concerned, are often overdrawn, but, combined with the homesick feeling, often result in the man going absent without leave and finally being dropped as a deserter."

A division inspector submitted the following in this connection:

"While stationed at Columbus Barracks, Ohio, last year I was a member of a general court-martial that tried approximately 100 enlisted men for desertion from National Guard regiments stationed on the border. I believe I am safe in saying that at least 90 per cent of them gave as their reason for desertion the fact that they had received letters from home to the effect that a wife, sister, or mother was either dying, very ill, or in destitute circumstances, and begged the man to come home at once. Many of the men admitted that when they arrived home they found that the writer of the letter had exaggerated conditions."

Many young soldiers, fresh from home, suffer from homesickness, no matter how army officers may try to make their surroundings pleasant and comfortable and provide proper amusements. A type of soldier will yearn for home and fall into a brooding mood. It is obvious how harmful to him and to the service a discontented letter from home might be.

Heartless German Nurses

THIS is what our boys "over there" are up against. They are the sworn statements of British officers captured by Germans and released because of wounds incapacitating them for further military service:

Lieutenant Colonel Neish says:

"At Cologne I saw a female with a Red Cross badge on her after serving our escort of German soldiers with coffee, deliberately pour the remaining contents of the can on the ground when requested to allow us to have some."

Major A. S. Peebles declares:

"At one station we asked two Red Cross ladies for a glass of water, saying it was for a wounded officer. They burst out laughing and said, 'Nothing for you English.'"

Captain Beman testifies:

"The German Red Cross gave no food to prisoners, wounded or otherwise. At times it is shown to them and then withdrawn with kindly remarks that it is not for swine."

Captain Hargreaves asserts:

"At Liege I tried personally to get the German Red Cross officials to give our wounded men water. They refused. I saw some Red Cross women actually bring water in cans up to a man, hold it to them and then [illegible] on the platform. This also [illegible] to me personally. All water [illegible] repeatedly refused us. [illegible] the train [illegible]. This was [illegible]

WATERLOO BOY TRACTOR

A 12-25 two-speed, one-man Tractor.

Big Power, Big Service, Big Value, Low Operating and Upkeep Costs for Field, Orchard and Road Service. Catalogue on Application.

W. L. CLEVELAND CO.,
208 N. Los Angeles St., Los Angeles, Cal.

5 Gallons Gasoline Furnished Light and Heat for 31 Days

"Utility Gas machine in operation 31 days and have not yet consumed 5 gallons of 18-cent gasoline. We have had to give it no attention except to turn on the current. The one thing that impresses us more than any other is the fact that it is such an economical fuel."—G. C. Carlisle, Delano, Cal.

THE UTILITY GAS MACHINE, an English invention, is so constructed that 98 per cent of the new gas is ordinary air and only 2 per cent gasoline vapor; just one-fiftieth of the new gas is gasoline vapor; think of it; a soft, white light, void of any rays which are injurious to the eyes, and an intensely hot blue flame, free from any carbon deposits, which may be used with any type of range, stove, radiator or heater; it is simply wonderful.

Only one machine, capacity 50 lights, for the astoundingly low price of $175. Write or see Mr. Twombly,

BEACON LIGHT CO., 636 S. Hill St., Los Angeles, Cal.

DIAMOND FLUME GATE
Watertight—Can't Clog

Reduces water expense by reducing the amount of water needed to do your irrigating. No clogging; this feature alone saves time and labor. Close fitting and accurately adjusted prevents any waste of water. Is watertight. Gates are made of high quality sheet metal. Made in three sizes—1 inch, 10c; 1½ inch, 12c; 2 inch, 15c; 10 per cent discount in lots of 500 and over. Tubes made of any length from 2 to 3 inches—longer tubes to order. The water saved pays for gates in very short time.

Andersen Flume Gate Company,
Redlands, California.

GOING TO BUILD?

Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.

Contractors' & Builders' Supply Co.
1401 5th St. Oakland, Cal.

Ask Your Dealer for
EL DORADO COCOANUT OIL CAKE
for Horses, Milch Cows, Chickens, Young Pigs and Hogs. Cheapest feed in the market today.
If your dealer doesn't carry it, address
EL DORADO OIL WORKS,
433 California St., San Francisco.

ANTS

SCHRADER'S

Ant Destroyer—is slow acting—does not kill instantly, but gets the nest as well as the parent. Does not lose strength. Positively non-poisonous— no danger to children, house pets or foodstuffs. Send 6c for trial can. Ask your neighbor. She uses it. At your dealer. Accept no substitute. Write Schrader Chemical Co., Dept. O, 19 to 25 Minna St., San Francisco, Cal.

REDWOOD IS DURABLE WOOD

REDWOOD IS FIRE RESISTING

No mere words can tell a truer story of the fire-resisting quality of redwood than this picture of the scene after the fire.

PACIFIC REDWOOD tanks and pipelines are built of seasoned lumber, in the manner thirty years of experience has proved the best.

PACIFIC Redwood tanks and pipelines cost so little to install, and last so long, that there is no farm investment equal in the amount of comfort furnished.

They save labor and drudgery, they preserve life and food, they economize time, they are the final touch to farm improvement.

To make the farm more attractive install a PACIFIC redwood tank and pipeline.

Our engineers will cheerfully draw up a water system, at your request.

Pacific Tank and Pipe Co.
Address nearest office.

Gentlemen:
Please send promptly your catalogue of Water Tanks.

I need a tank to hold..... gallons.

It should be mounted on a tower .....feet high.

The water to be delivered from .....

Pipe { Length..... Size.....

Name.....

Address.....

PACIFIC TANK & PIPE CO.
THE STANDARD SINCE 88

314 Market Street, San Francisco
908 Trust and Savings Bldg., Los Angeles

Bailey Millard, Editor.

The Curse of California—Our Millions of Idle Acres

UNDER the above heading there was published in the April number of of Orchard and Farm an article that, as one correspondent has put it, "stirred the State."

But what is the good of stirring the State if, after it is stirred, it settles down again and does nothing to correct the great evil of its idle lands?

The heart of the patriotic rural economist is sickened by the slowness with which the problem of our idle acres is being solved. Sometimes he feels like throwing up his hands and saying, "What's the use? Let it go! Nothing is being done and nothing will be done to correct the great evil and to get down to real efficiency in the matter of food production."

If, at the time of our entry into the world war, fourteen months ago, it had been predicted that the millions of acres of idle lands in California would still be idle in June, 1918, the prophecy would have been declared a treasonable utterance.

Well, those millions of acres are still idle!

Are they going to remain idle?

Can nothing be done to put them under tilth?

Can nothing be done to speed up food production in the only way that it can be speeded up—the cultivation of land that is now yielding nothing by way of human food?

What active agency is there at work to break up the big holdings and let the small farmers — men eager and willing to go forth and till that land and produce the food for which the hungry peoples of Europe are crying, and for which our own people will soon be crying?

As we look over the whole horizon we can see no active, no potent agency bent upon this highly important work, save one organization.

What is that organization?

The Single Taxers.

Here is a body of earnest men and women voters eager, nay ardent, in their desire to use their own peculiar means to break up the big land holdings, and they will do it as surely as sunrise unless our Federal or State Government, our business men or our County organizations get busy and head them off with a more expedient plan.

What makes us think that Single Tax is gaining ground?

Well, in the first place, as organized in California, it has a tremendous following. At the last general election it polled 260,332 votes. This year the Single Taxers have rolled up their sleeves and are hard at work. Next November, unless there is a great awakening among our people before that time, they will poll half a million votes and Single Tax will be the law of the State.

California is a State of surprises, and a lot of our people will wake up next November to find that theirs is the first State in the Union to go upon the Single Tax list.

Unless——

Well, unless a more acceptable scheme of agrarian reform shall be planned and carried out before that time.

There is no use trying to disguise the fact that the Single Taxers are the only element that is prosecuting any sort of campaign at present to break up the big land holdings. They feel that the time is auspicious, for there is a general, if vague, demand that something be done to throw open our idle acres. They are encouraged by their showing in 1916, and they are fortified with a campaign fund over three times as large as they had that year. Some big agencies are working with them, among them Mary Fels, the multi-millionaire, who has been duplicating all contributions to Single Tax. They are all working with great energy, they are continually proselyting throughout the State, and they are preparing for a whirlwind campaign this summer and fall. They have their petitions out in every city and town, and many thousands of signatures have been secured. They openly avow their intention to sweep the State and are willing to admit that the entire energies of their national organization are centered upon California. That organization wants to make this State the entering wedge. It sees in present conditions here the best possible chance to win a first victory for Single Tax in this country.

THE SPIRIT OF '18

The Battle Cry of Feed 'Em

By Fred Emerson Brooks

YES, we'll rally round the farms, boys,
We'll rally once again,
Shouting the battle cry of feed 'em.
We've got the ships and money
And the best of fighting men,
Shouting the battle cry of feed 'em.

The onion forever, the beans and the corn,
Down with the tater—it's up the next morn—
While we rally round the plow, boys,
And take the hoe again,
Shouting the battle cry of feed 'em.

Single Tax, as laid down by Henry George, is not a bad thing theoretically. Its advocates are worthy men and women—some of them of high culture and all of them imbued with the best of motives—the more equitable distribution of the world's wealth.

Henry George declared that the taking of rent for private use was the cause of poverty. His remedy was to make land common property, and as a means to this end he proposed to abolish all taxation save that upon land values, or "to appropriate rent by taxation." There would be no taxes on commodities, no income tax, no inheritance tax, no taxes on personal property on money or investments, save real estate. The only persons taxed would be the owners of land.

The Single Tax constitutional amendment proposed for the State of California states:

"All public revenues, State, county, municipal and district, shall be raised by taxation of the value of land irrespective of improvements thereon, provided, that war veteran, college and church exemptions in Sections 1¼, 1½ and 1a, Article XIII of the Constitution, are not affected hereby."

This amendment fairly represents the George idea.

But, granting that that idea and the ideas of the California Single Taxer are right, is this the time to put them into practice? A world war on hand, millions clamoring for food, and, in the midst of it all, to have an economic unheaval that would discourage the ownership of land or the renting of it for food production!

There is powerful logic in the suggestion that our Single Tax friends should wait a while, or begin their "Great Adventure" by a gradual increase of taxation upon land and a lessening of taxation upon improvements. But no; they must needs have their Homeric shake-up right now in the midst of the great war. No wonder agrarian economists are saying that they are inviting chaos.

Now our California farmers did not vote for Single Tax in 1916, and they will not vote for it in 1918, but their strength is small. They are probably unable to poll more than 150,000 votes.

Farmers dread the coming of Single Tax, for they think it would mean the doubling of taxation on land owners and the confiscation of their property. What most of them probably do not know is that the proposed amendment would take for public use the rental and site value of land, thus leaving no real value in the hands of the owner.

But this article is not intended as an argument against Single Tax. As we say, we do not know that it is a bad thing. It never has been tried. The Canadian example, which is only modified and limited Single Tax, is not a fair one, for there the Government has aided many industries by bountiful subsidies, compared with which our own Government's contributions are on a paltry scale.

If our farmers do not want to witness the great economic upheaval which Single Tax certainly would bring, let them get together and petition the Government to enlarge the scope and powers of the Land Banks so that it shall be an easy matter for a prospective farmer to secure money to make a first payment upon a new farm and the new buildings upon it.

Let them prepare and have the people vote upon an amendment to the State Constitution creating a fund that shall be for the purpose of aiding scientific farming on a large scale and for the purchase by the State of a large number of tractors that shall be sold or rented to farmers at a low monthly rate, as has been done in Michigan and four other States.

Let them urge that the Australian scheme of closer colonization, instead of being merely placed upon a demonstration basis, as the last Legislature placed it, be made general throughout the State. In other words, that the State issue bonds for the purchase of one large landholding after another and settle farmers upon them upon the liberal terms given by the Australian provinces.

Let them urge the carrying out of any or all of these plans and the bugbear of Single Tax will disappear.

But, above all things, let them act quickly!

Land-Hungry Men

By C. J. Blanchard

A VERITABLE tidal wave of inquiries set in right after the first press notice of two recent land openings in Colorado. From Maine to California, from Texas to Minnesota, the inquiries poured into the Land Department day by day.

It would appear that everybody in the country is anxious for a Government irrigated farm.

What a pity it is that we cannot satisfy this demand for homes. Here is evidence of a hunger for land just as great today as at any time in the past, and the Service with its funds so limited that it can touch no new project for five years or more.

When we should be talking about operating a million acres of land, the best we can offer is 12,000 acres.

It is discouraging at this time, too, when the nation needs so badly the product of every acre which can be made to grow a crop.

The English Government recently announced that it expected the people to cultivate an additional 3,000,000 acres during the year of 1918. This is approximately an addition of one acre to the four planted in 1917.

How England Does It

Considering that England is pretty well engaged right now in war work, that it is a little country, and that the best of her men are in France or elsewhere on the front, the expectation of increased acreage in food crops seemed too absurd. Not so, however. Shortage of stock and labor has been met by the Government's purchase of tractors, which are loaned to the farmers, and women are driving the tractors.

These women are being trained by the Government. In order to increase the potato production, the Government offers a premium of an extra $5 per ton for every ton of potatoes grown on freshly broken land. Potatoes are being used quite largely in bread making, and such use may be made compulsory in the near future.

British Land Hog Is Up Against It

The land hog in England these days is surely up against it. Local authorities have been given authority to enter upon any lands not being used for the growing of foodstuffs and let plots at a nominal rent or free in certain cases to persons who were willing to work it.

At the end of 1917 over 1500 local authorities had exercised their powers and provided not less than 200,000 plots totaling 15,000 acres. The value of the crops grown was more than $15,000,000. So great is the demand for these plots that it is almost impossible to find a vacant lot anywhere in the vicinity of the cities.

Who will be the first statesman in Congress to interest himself in working out a law to permit a similar development of the unused lands in and about our cities?

Intensive Potato Growing

THE crib system of potato growing which was so successful in Kansas last year is being tried by some of our California gardeners. [illegible] F. Smith of 2711 South Main Street, Los Angeles, has planted one of these cribs and expects to get over [illegible] bushels of potatoes from it. [illegible] crib is 6x7 feet on the ground and [illegible] 6 feet high. In it there are [illegible] layers of potato plantings.

[illegible] planted his potatoes in March and they are poking their healthy-looking tops out through the cracks in the crib which is composed of six-inch boards about two and one-half [illegible] apart. He uses barnyard, chicken and [illegible] manure and irrigates [illegible] with a hand hose. Smith [illegible] successful with sweet potatoes [illegible] this way last year.

Two Sad Crop Shortages

ON account of adverse weather conditions two of California's leading crops will greatly disappoint the Food Administration. These are prunes and wheat. Reports from Santa Clara Valley show that prunes will be little better than half a crop. As for wheat the lack of late spring rains has reduced the crop estimates by over a million bushels.

California's clear duty is to eat very little if any wheat products during the present year. If we had practiced the dry farming methods recommended by Hardy W. Campbell in Orchard and Farm we easily could have harvested 10,000,000, enough to satisfy the demands for home consumption. If we harvest half of that amount this season we shall do well and all simply because of our neglect to pursue proper methods of tillage.

Well, if we do not raise wheat we should not eat it, unless we can import it from Australia. Perhaps we can do this if our shipbuilders speed up their programs.

Edw. H. Shepard Passes Away

EDWARD HENRY SHEPARD, editor of Better Fruit, whose horticultural work was known throughout the entire country, died recently at Portland, Ore. Mr. Shepard was a recognized authority on orchard matters. It is said of him that no one man did more to make fruit growing a profitable business enterprise and to direct the marketing of fruits to their proper channels.

Mr. Shepard bought an orchard in Hood River Valley sixteen years ago when not much was known about that wonderful fruit region. He did more to put the Hood River country on the map as an apple-raising district than any other man.

Besides being the editor of Better Fruit, one of the leading horticultural journals of the west, Mr. Shepard was a prominent member of the American Pomological Society and an honorary member of the Horticultral Societies of Oregon, Washington and Idaho. He is survived by a widow and five daughters.

The Poor Man's War

THE curbstone critic fished a 5-cent cigar out of his pocket and aired his views.

"It's not my war—or yours. It's a rich man's war. Let him fight it."

The man in the overalls with the dinner pail, who had stopped to wait for a car, butted into the talk.

"Where did you get that hunch, friend? My boss has two sons. Both of them are at the front. Neither could have got exemption if he had tried, and to give them their due they didn't try. Now take me. I've got three grown sons. One has a wife and two kids. He'll stay at home to support them. One works in a shipyard. He'll stay in this country. The third drives a truck. He'll go to France. You've got to show me before I'll believe it's a rich man's war."

"He's making money out of the war and we're paying for it, aren't we?"

"Some rich men are making money. Some aren't. I notice stocks are away down. That hits them. When it comes to paying for the war, I reckon we're all doing our share. The income tax and the supertax, and the excess profit tax all hit him. It's the first war I ever heard of when the capitalist pays his proportion. Of course the workingman pays, too. I pay on tobacco, and the wife and kids pay when they go to the movies. That's right, too. They're not necessaries. I like to think I'm taking a wallop at the Kaiser every time I light up. No, sir; the rich man hasn't any monopoly on this war. It's my war, too."

And the man with the dinner pail swung on to a car so as to get home to work in his war garden.

Calco Troughs for Hogs

Raising hogs for profit demands sanitary and easily cleanable drinking and feeding troughs.

Calco Troughs—with round bottoms and smooth metal sides—are easily cleanable. Cross bars prevent hogs lying in troughs.

Made of rust-resisting Armco Iron and cast iron—strong, rigid, yet light.

The low cost covers years of use and service.

Diameter	Depth	Length	Price
10¼"	5-5/16"	24"	$ 2.75
10¼"	5-5/16"	120"	6.55
14"	7-3/16"	24"	3.70
14"	7-3/16"	120"	8.20

Other models in same depth and diameter 40 and 60 inches in length.

Simply attach check to this advertisement, giving name, address and size wanted, or write for detailed price list.

California Corrugated Culvert Co.

WEST BERKELEY
410 Parker Street

LOS ANGELES
121 Leroy Street

WE TRAIN MEN FOR TRACTOR ENGINEERS

Because of the great demand for trained and efficient Tractor Engineers, the C. L. Best Gas Traction Agency is operating a first-class Tractor Engineering School at their headquarters. Men without trades! We can prepare and assist you to earn from $100 to $175 a month and board. Our course includes Tracklayers, Caterpillars, all makes of wheel tractors and stationary engines. Expert instructors in charge. Let the men, who are representing the manufacturers, prepare you for Tractor Engineers. Day and Night classes.

TRACTOR ENGINEERING SCHOOL, REGISTERED.

Located—C. L. Best Gas Traction Agency,
256 South Los Angeles street, Los Angeles, California.

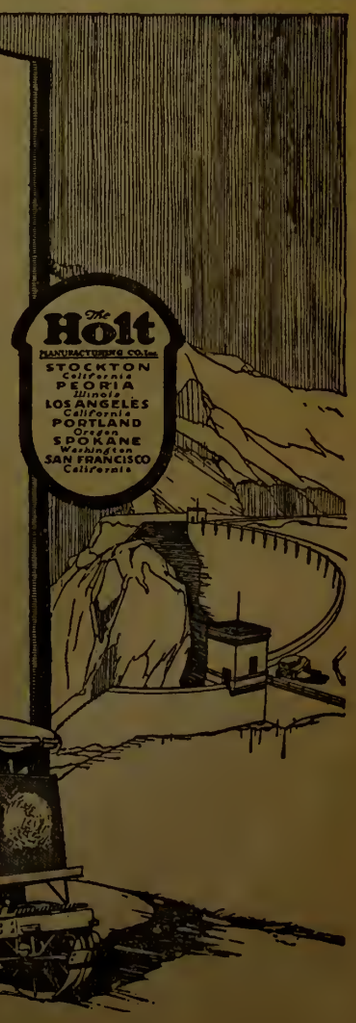
Builders of Prosperity

The great irrigation project adds to the country's wealth by making arid land fruitful. The "Caterpillar" Tractor achieves a similar result by providing cheaper, more efficient power for cultivation. Both are builders of prosperity.

Cheaper, more efficient power means bigger profits, less work, less worry. The "Caterpillar" Tractor excels in this respect because of correct design, correct construction, correct choice of materials, backed by thirty-five years' manufacturing experience. These make the "Caterpillar" Tractor a most profitable investment.

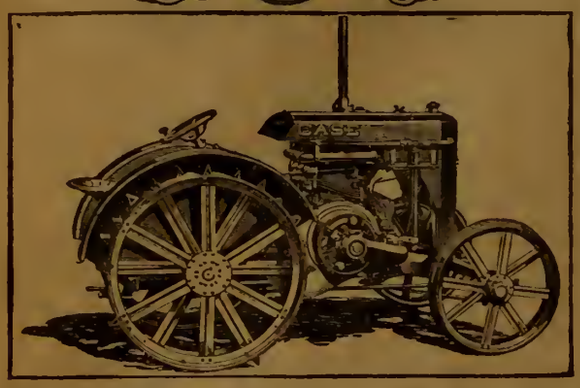
Let us send you complete information about this Tractor. A post card request will bring it.

CATERPILLAR
Reg. U.S. Pat. Off.



CASE

KEROSENE TRACTORS



The Handiest Tractor Of Them All

THIS Case 9-18 Kerosene Tractor includes all those practical and handy features that farmers most desire in a small tractor.

This 3400 pound tractor pulls two 14-inch plows anywhere a good team can continuously pull one 12-inch plow. It delivers 33⅓ more drawbar horsepower than rated.

While light in weight, it is built according to Case standards of sturdiness. It weighs but little more than a team of horses.

It has a 4-cylinder Case valve-in-head motor and burns kerosene successfully and economically. An efficient air washer prevents dust and grit entering the cylinders. An improved cooling system includes pump circulation and Sylphon Thermostat control. In dozens of ways this tractor is far in advance. It is the pattern which others try to follow.

In plowing, all wheels run on the unplowed ground. Its all-steel gears are enclosed and run in oil. There are six Hyatt Roller Bearings for gear box, bull pinion shaft and rear axle.

This powerful little tractor, the most efficient in its class, can drive a Case 20 x 28 Thresher, fully equipped; a Case No. 12 Silo Filler; Case 17x22 Hay Baler and other machines requiring similar power.

No other small tractor offers you so much. When you buy it, you are obtaining the utmost.

Before you buy, investigate the Case 9-18. A Case dealer will be glad to tell you all about it. Or write to us direct.

J. I. Case Threshing Machine Company, Inc.

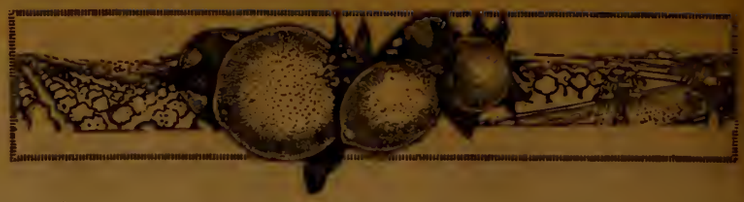
(Founded 1842) 1165 Erie Street, Racine, Wis., U.S.A.

(739)

NOTICE TO READERS

If readers of this publication do not find advertised just what they are looking for, write Orchard and Farm, Examiner Building, Los Angeles, and you will be put in touch with reliable firms handling the goods desired.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.



Citrus Outlook Very Bright

(Continued From Page 7)

may be saved to the orange growers," said Dr. E. J. Wickson, one of the most eminent horticultural authorities in the West, recently at a citrus fruit growers' convention in Porterville. He went on to say that the loss to the citrus fruit industry of California by reason of the "June drop" has been at least a million and half dollars each summer for a generation or more.

Last June a dozen navel orange growers in the Upland and Ontario district had their groves planted to a summer cover crop of alfalfa or peas when the phenomenally hot wave of June 16 came sweeping over the State, they had the least dropping of green fruit of anybody in the district or in that whole section. They had almost normal crops ready for the market last spring.

Spring Weather Ideal

Dr Wickson has said that the weather which has prevailed in Southern California since the April blossoming has been ideal for a setting of the new crop.

Taking it all in all the California orange growers have good reason for their optimism for the yield which will be ready for the harvest next winter. They have besides the strong conditions for crop production, the best outlook for a most profitable market. The foreign supply of oranges and lemons to American ports has become during these war days almost negligible. It has been the smallest since February that it ever was in the same period of time.

Scores of eastern importers of citrus fruits from Spain and Sicily and the West Indies have gone out of business during the last year after having vainly tried to stem the tide of business reverses since the war began.

The market for Valencia oranges presages a wonderful demand for a navel fruit next season. Today Valencia oranges are bringing the biggest prices ever known for such variety of fruit in America at this period of the year. Fruit shipping experts make no bones of predicting that by the end of September Valencia oranges out of California will be bringing the top most prices for any grade or quality of oranges known in the history of the trade.

Boys Will Help Ranchers

(Continued From Page 7)

throughout the State of Utah are enrolling all boys from 16 to 21 into the United States Boys' Working Reserve All boys from 12 to 15 years of age are being enrolled into what is called the Junior Reserve, and girls from 15 to 20 into the Girls' Reserve These two reserves are purely State organizations.

The enrollment and the amount and character of home and field work accomplished during the year will be made a part of the school record of each pupil. Practically all of the boys of Reserve age will be employed on farms at or near their homes. The boys who will work away from home are being organized into companies of ten and will be under the special supervision of their teachers or other leaders who will co-operate closely with County Farm and Home Demonstrators.

The boys and girls of Utah did splendid work last year. In the Spanish Fork High School in Utah county, out of 159 girls enrolled 156 registered for farm work. The boys and girls of this school district during a school vacation of four weeks, cared for 4500 acres of sugar beets, besides a large acreage of potatoes and fruit. Ninety-eight per cent of the pupils remained at work until vacation closed. All the boys and girls helped whether rich or poor.

There are two reasons for not forcing the sale of hens. The first is that heavy sales may make a market glut and low prices; the second is that feed cost will come down before long.

We Want New Farming Facts

ORCHARD AND FARM asks you to send in little stories of experiments you have made in farm work that proved of value to you, and also accounts of unsuccessful experiments that would be a guide for others.

We want Orchard and Farm to be a meeting place of the farmers of the Pacific Coast, where they can exchange experiences and profit by such exchange. Practical farmers everywhere are continually devising some new wrinkle as to cultivation, or irrigation, or fertilization, as well as schemes as to livestock raising. A practical farmer's ingenuity frequently results in the production of an idea of practice as valuable as that evolved by a professor of agriculture.

All of these communications will be saved. The best will be printed, and at the end of a year a committee will pass upon them. This committee will be from the California College of Agriculture, as follows:

John W. Gilmore, Division of Farm Management.
Gordon H. True, Division of Animal Husbandry.
C. L. Roadhouse, Dairy Industry Division.
J. E. Dougherty, Poultry Division.
W. L. Howard, Division of Pomology.
Frederic T. Bioletti, Division of Viticulture.
Frank Adams, Irrigation Division.
H. J. Webber, Director Citrus Experiment Station, Riverside, Cal.

The communication that is regarded by the committee as having proved of the most value will be awarded a prize of $50. The one second in value will receive a prize of $25. The third in value will receive a prize of $15. The fourth, $10, and the fifth in value, $5.

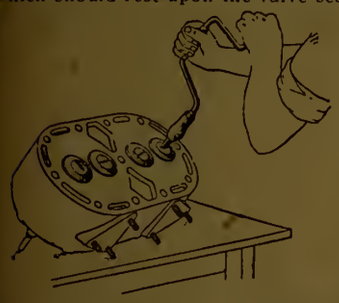
Write to Orchard and Farm as briefly and as clearly as possible, so that there can be no mistake as to your meaning about the original thing you have developed that you regard as having been of the greatest value to you and your farm.

How to Grind Valves

IT MAY become necessary to regrind the engine, tractor, or automobile valves. To begin with, take the valve springs off and clean the valve seat with kerosene. Make sure that the valve stem and sleeves are clean.

If the valves are contained in the cylinder head, remove the head, place it on a table, and proceed to grind the valves as explained in this article.

The best grinding compound is made of emery dust and oil and can usually be purchased from a machine shop or a garage. Apply some of this compound to that part of the valve which should rest upon the valve seat.



Then put the valve in place and with a carpenter's brace and screw driver bit, revolve it from one-quarter to one-half turn, with only a small amount of pressure, then back the same distance in the opposite direction.

Continue this operation ten or fifteen times, then lift the valve off the seat and give it about half a turn before placing it back upon the seat. Repeat the oscillating motion with the brace again. This operation should be continued until all parts of the valve and valve seat are in contact. This can be determined by removing the valve, cleaning it and observing the surface that is ground bright. The bright surface should extend continuously around the valve and valve seat.

Be sure that all the grinding compound is removed from the valve and valve seat, cylinder head and valve cage.

It Pays to House Machinery

IN REPLY to a circular letter to farmers from all sections of the country say that it pays to house and care for farm machines. This is true under normal conditions but at the present prices of iron and steel and the difficulties of transportation, it will pay all the more.

A good shed, keeping all nuts well tightened up, plenty of oil and grease,

Have a Machinery Shed

[illegible] paint at frequent intervals, and [illegible] replacing all the worn or [illegible] parts, adds to the life and [illegible] farm machines and implements. [illegible] the machine to [illegible] better service, be [illegible] less repairs, [illegible] at [illegible] and be less likely to [illegible] when [illegible] needed.

WITTE Kero-Oil ENGINES

Immediate Shipment

2, 3, 4, 6, 8, 12, 16 and 22 H-P.—Direct from the Largest Exclusive Engine Factory in the world, selling by mail. Money Back if Not Satisfied on my new 90 Day offer. 5-Year Guarantee. Fuel cost **one-half less** using kerosene. Write for new book (copyrighted) **"How To Judge Engines"**, printed in colors and fully illustrated, showing how I can save you $15 to $200--sell you on practically your own terms --Cash, Payments or No Money Down.--Ed. H. Witte.

WITTE ENGINE WORKS

3125 Oakland Ave., Kansas City, Mo.
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Hercules Gasoline Engines
1½, 3, 5, 7, 9, 12 horsepower.

The Hercules Gasoline Engines

Are the most complete up-to-date engines made. Has less parts and fool proof. Fitted with a Webster oscillating magneto, always ready for operation—no batteries.

PUMPS FOR ALL PURPOSES.

Woodin & Little

Pump House,
33-41 Fremont St.,
San Francisco, Cal.

Yuba success turns on the ball

THE ENDLESS TRACK runs on two sets of enlarged ball bearings, with friction reduced to a minimum. The weight of the machine and the wear of its motion are borne by the steel balls. They run in a cast-steel ball race, over the manganese tread links lying on the ground. There's no slack chain to pull, the power generated by the engine is centered at the draw-bar.

The large steel balls used in the Yuba Ball Tread Tractor are the "good roads" of tractordom.

The steel balls are 2¼ inches in diameter, each being capable of carrying 90,000 pounds without damage.

Friction is reduced to a minimum by the use of high duty roller bearings, cut gears of high-grade steel having a special tooth shape, to aid in reducing the loss of power still further.

Please tell us the number of acres you have, and the kind of operations.

In the 20-35 the bearing area of treads is 1,680 square inches. The pressure on the ground due to the weight of the tractor is less than five pounds to the square inch.

The width of the tread is 17½ inches; speed at low gear is 2.06 miles; at high gear, 3.28 miles an hour. The draw-bar rating is 20 H. P.; the maximum sustained pull is 5,000 pounds. The power as a stationary plant is 35 H. P. The total weight is 10,250 pounds. Carries 38 gallons distillate and 7 gallons gasoline.

The sum of all these things means for you a better farming implement, deeper plowing, more thorough cultivation, at the right time, at less cost.

Yuba Manufacturing Company

433 California Street
San Francisco

Factories at
Marysville and
Benicia

Department J

Model 12-20
Model 20-35
Model 40-70

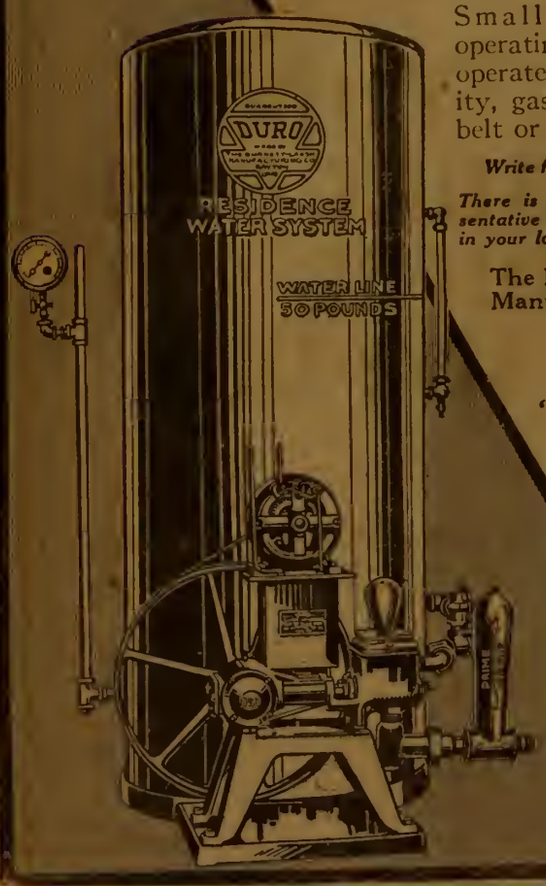
"DURO"
RESIDENCE WATER SYSTEM

Running water in the house and barn has become a necessity.

No other one thing will do so much to increase efficiency—to lighten burdens and to save time and money as a dependable water system.

"Duro" Water Systems are adapted to all the requirements of farm or suburban homes.

Small cost—low operating expense—operates on electricity, gasoline engine, belt or hand power.



Write for Information

There is a "Duro" representative and service man in your locality.

The Burnett-Larsh Manufacturing Co.
Dayton, Ohio

"Duro" Power Pumping Outfit as low as $72.00

P For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped **I** NEW and 2nd Hand **P** Screw Casings Fittings and Valves Guaranteed For Pressure **E**

PACIFIC PIPE CO. TESTED and GUARANTEED. Main and Howard Sts., San Francisco.

Added protection with Mica Axle Grease. Powdered mica—a mineral lubricant, practically wear- and heat-proof—mixed by special process with highest-quality petroleum grease, keeps spindles smooth and cool—no hot boxes, resists wear and pressure and makes the grease last twice as long. Get a can from your dealer today.

STANDARD OIL COMPANY (California)

Live Stock and Dairy

What I Look for in Calves

I WANT them well bred, and to get that kind I go where well bred ones are. About half of the seven loads I entered at the 1917 International Show were pure-breds, though a few of them were from herds that had not kept up the pedigrees. I take a trip out through Iowa and Illinois every fall when I start to get together the calves that are to be my entries for the following show. I buy them right from the cow's side.

I want to see the sire and dam if possible, as well as the calf, or if not the sire and dam, as many near relatives as possible. Shape, type and finish all appeal to me in picking out the calves then. I want a calf full of quality and style. I want the head up like a bird, a bright countenance. I want a leg under each corner of the calf, with nice quality in the bone; coarse bone means coarse meat on that bone when the animal is finished.

The top and bottom lines of a grand champion steer prospect should be parallel with a deep body between these lines. The rib must be well sprung, and broken off neat and square at the tailhead. I look for a short neck, well set on shoulders with good style and cut up neat around the throat latch, so that the finished steer cuts meat to the jawbone

A short head, wide between the eyes, and carrying a heavy jaw, are characteristics of a good feeder that I never overlook. Neat, small ears, well set up to give a keen, bright appearance, go with an eye like a bird. I look for an oily coat of hair on a loose hide with plenty of stretch A low flank, with a straight hind leg below, brushed by a short tail, about completes the picture of my grade champion prospect.

Given the breeding and the mating up so that all look like peas, all that is necessary to make the Grand Champions is to get them home and feed and fit them for the big days when the judges hang the ribbons. As I pick calves, the proper finish is comparatively easy, as no other breed can be fitted and held up without going bad like an overripe apple if not shown just when they are ready.—Ed P. Hall, Chicago.

Don't Let the Silo Loaf

WHY let the silo loaf half the time? Silage is just as practicable for feeding in summer as it is in winter. Pasture is likely to be uncertain and after the first few weeks a combination of overstocking, the pasture, heat, and the flies, may cut the milk flow in half.

If enough silage is put away, part of it may well be used for summer feeding Silage, further, is uniform in quality from day to day while green crops may vary in quality.

Sorghum, clover, alfalfa, millet, soy beans and field beans and peas grown together have been used with varying degrees of success. The silo may even be refilled with early sowed peas and oats that are cut when the peas are forming and the oats are in the milk stage, if the supply of corn silage gives out.

Because silage is such a valuable and compact feed it is well to have plenty of silo room. Have two or even three, if business warrants. Make the silo as permanent and substantial as possible. The cylindrical type, made of wood, concrete or hollow tile, has been proved good by experience.

If there were as many persons so keenly interested in the price of defeat as they appear to be in the price of wheat, our war problems would be much nearer solution.

Big Milk Exposition

NEW YORK was the Mecca for thousands of dairymen and others directly interested in the milk industry who went there from all parts of the country to attend the National Milk and Dairy Farm Exposition which was held in Grand Central Palace the week of May 20. Interest in the affair ran very high for the exposition served to show all that is new and interesting in the industry and its allied interests in a most comprehensive way.

Three floors of the huge building were devoted to the milk exposition during which a series of important conferences were held There were fine exhibits and practical demonstrations of all forms of milk foods and milk products, processes of milk handling, machinery and equipment and all manner of things relating to the dairy farm and its allied interests One of its chief purposes was to demonstrate the fact that milk is one of nature's most valuable as well as one of the cheapest of foods

Dr Charles E. North, managing director, arranged a series of contests in which prizes were offered for milk dealers for the cleanest and best put up milk; cheese now being made in quantities by American dairymen in varieties that were formerly imported, butter, pot-cheese, condensed milk, ice cream, milk chocolate, evaporated cream, milk powder, etc

Model dairy farms, live cows milked by electricity and by quaintly attired milkmaids, were among the exhibits in addition to educational features relating to all processes of milk culture. The keynote of the entire exposition was that the conservation of dairy farm products will help win the war. It was ninety per cent educational and designed to teach the dairymen better efficiency.

Cause of Blackleg

BLACKLEG is caused by a small germ, an organism about one three-thousandth of an inch long This germ multiplies very rapidly by one organism dividing into two individuals and these again dividing in the same way, also by producing very much smaller spores or seeds. These spores are very hardy and resist extreme heat and cold, remaining alive sometimes for many years. As a consequence when a pasture, corral or feed lot is once contaminated with the organism there is no telling how long it will harbor the infection. Disinfecting the premises is impractical. Safety lies in vaccination In all contagious germ diseases the animals most likely to get sick are those whose constitution is more or less weakened from any cause—at weaning time, after changing from poorly fed to heavy feeding or vice versa Immunizing beforehand insures safety

Highly bred calves are more susceptible than scrubs. Many operators report perfect results when they vaccinate at the same time they brand, dehorn, or castrate Vaccinate any time for blackleg.

When a calf is turned upon infected ground it picks up some of the spores which gain entrance to the body in various ways—through the bruised skin, through the mouth either with the food and water or merely by the animal licking itself. These spores immediately come into active life, begin to grow and multiply, and if the animal is a susceptible one it contracts the disease If it is immune the germ will have no effect whatever upon it Therefore, immunize the calf with a reliable vaccine before it picks up these organisms—Dr. C. [illegible] Franklin.

Cattlemen Are Organized

Now for Increased Production!

THE cattlemen of California are awakened at last.

They have been organizing for increased production and for increased profit.

Of course, patriotic considerations are moving them, too, but they want to be assured that they will be on the right side of the ledger at the end of the year.

The recent convention at Davis, Cal., followed the splendid work of L. A. Nares, member of the Federal Livestock Commission and president of the Cattlemen's Association of California. Mr. Nares rounded up the stockmen in a 7000-mile trip over the State, visiting and organizing every community that produces livestock to any extent.

A few days before the convention at Davis Mr. Nares made the following statement:

"The Government at this time is doing all it can to assist every line that is vital to the successful prosecution of the war. At no time was there a better understanding between the Government, the packer and the producer than now.

Feed Speculator Eliminated

"By the elimination of speculation in feeds it has been made possible for the producer practically to regulate the price.

"Every cattleman in this State can find a market for his products right in this State. It is not necessary for him to ship to Eastern markets. I want to state positively that the Government is at all times fair, and if the cattlemen of California have any grievances they will be listened to by the President's investigating committee, and, if based on fair grounds, their demands will be granted, I am certain."

Speaking of the organization of the cattle and livestock industry of the State, Mr. Nares said that for the first time in history the different sections of California are coming together; that suspicion and distrust which heretofore had hurt the trade is slowly being wiped out.

"The cattle industry of the State is a $70,000,000 business and is the only large industry that is not organized," he said. "With the meeting of all sections at Davis questions and ideas will be exchanged and it is believed it will mean a great increase in production and a benefit to every cattleman as well as to the Government.

Hog Outlook Bad

"The prospect for hogs this year is far from bright. During my trip over the State I became convinced that hog production is at present 50 per cent below normal of the needed requirements of the State and Government. We are carrying on a campaign for the placing of pigs on every ranch in the State.

"No farmer need fear that he will not make a profit on his hog investment, for the Government's needs are a certain prediction that all pork will be used next year."

Dairying in the Willamette Valley

THE Oregonians of the Willamette Valley have an asset in their mild winter climate. The temperature of this locality for the second week in December has kept pretty evenly around 38 and 40 degrees above at sunrise, and four or five degrees warmer at noon.

While this section is far from being an exclusive dairy country, yet in a drive of eleven miles I counted thirty-seven silos. It is a common practice to fill the silos twice a year. The first filling, about June 1, is with winter vetch, which was sowed the preceding November or December. That helps out dry pastures of July and August. Then for winter use, when the rains come and the grass is at a standstill, and pastures too wet to be tramped upon, the second filling, which usually is of corn, comes very handy. Where a farmer keeps less than five or six cows, kale helps out the winter feed. Late kale, here, did not do well this year, but that which was transplanted early made splendid growth.

"We are shipping our cream, there being no co-operative creamery within good hauling distance; and, though prices have been good, we do not feel as independent as when we had a share in the plant that handled our product.

"The strength of the wolf is the pack, and the strength of the pack is the wolf." When Kipling said that, he gave us an excellent idea of co-operation.

Perhaps the diversity of kinds of farming in the Willamette Valley, as well as raising producing grain, cattle raising, the getting out of piling cross and ties, raising of hops, do not allow dairying to have a great place among the farms.

Farmers are considering the advisability of raising more dairy cows, and great consideration over the Holstein as the foundation of the Middle West, and consequently do not feel bound together to work for co-operative creameries.

With land at $200 or more an acre, the scrub cow has disappeared. Jerseys are mostly in evidence. But only about two months ago a carload of pure-bred Guernseys from Massachusetts were brought into Clackamas County and bid for by owners of different herds.—C. J. Emery.

Spare the Hoe, Spoil the Garden

FREQUENT cultivation of the war garden is the main thing needed for its success. Cultivation has two chief values. First, it controls the weeds that would otherwise take plant food away from the vegetable crops and choke them out; second, where cultivation is shallow and frequent it makes a fine mulch on top of the soil which prevents the loss of moisture.

While sandy soil may be worked when fairly wet, soil which is at all of a clay nature should not be worked until it is so dry that it will not cling together in a sticky mass when pressed.

Most war gardens probably will not be large enough to require any cultivating tools except the trusty hoe, and even the gardeners who find they can use a hand or horse-drawn cultivator to advantage will not be able to avoid some hand work.

It will require the garden rake to put the final touches on the cultivating job.

During the first and second years of an asparagus plantation no shoots should be removed, but at the beginning of the third year some of the crop may be harvested. Even during the third season, the cutting season should be short, as it is important to have large, well-developed crowns for the production of good asparagus.

THE "ACID" TEST OF VALUE

At an auction sale the buyer makes the price.

Auction prices are apt to be lower than the real value warrants, rather than higher.

In any case, auction prices represent the estimate of value placed on the article by the buyer and not the seller.

During the past few months, the cow owner's appreciation of the unusual values offered in De Laval Cream Separators has been demonstrated in a most remarkable way.

From one state after another have come reports of the sale of De Laval machines at farm auctions—machines which had been in steady use for several years—at prices, in most cases, only two or three dollars less than the sale price when new; sometimes at practically the same price at which the machine was sold when new; and, in several instances, at even more than the original list price.

In February, at a Missouri auction sale, a De Laval in use two years was sold for $1.25 above the original purchase price. In Kentucky a farmer paid for a De Laval $2.00 more than the original price, at an auction sale. Last January, in West Virginia, a second-hand De Laval sold at auction for $2.50 less than the original catalog price. On January 15, in Ohio, a De Laval machine in use a year was sold at auction for exactly the same price it brought when new, and at another point in Ohio a De Laval in use several months brought several dollars more at auction than the original list price. In the province of Ontario, early in April, a De Laval in use since 1916 brought at auction a price $5.00 higher than the owner paid for it when new.

In contrast with these prices paid for De Lavals at farm auctions, it is interesting to note that when other makes of cream separators are offered they are usually listed simply as a "cream separator," and not by name. Often there is no bid for such machines and their usual auction prices run from $10 to $15. We have never heard of one that sold at auction for half its original cost.

Perhaps you may not have had an opportunity to learn of the cleaner skimming, easier turning, the great durability and the splendid service given by the De Laval machines, but here is the strongest and best sort of evidence that those who do know cream separators appreciate that the man who buys a De Laval gets good and generous value for the purchase price. And further, that even after a De Laval has been several years in use, it is practically as good as new.

If you are without a cream separator or in need of a new or better one, why not see the local De Laval agent immediately? If you don't know him, address the nearest De Laval office as below, for any desired particulars.

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST. Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Acme Ensilage Cutters and Blowers, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.

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IT IS DUE to ourselves and to prospective users of Cutter's Anti-Hog Cholera Serum and Hog Cholera Virus to say that up to 1917 we had not produced either of these articles.

But is is also due to ourselves and prospective users to say that when we did start to produce them *we had back of us twenty years of experience* in producing serums and viruses for human and animal use, and in that respect we were better qualified to produce them than laboratories which, while they have been producing Anti-Hog Cholera Serum and Hog Cholera Virus for a few years, lack the experience in producing *high-grade laboratory products* that The Cutter Laboratory possesses.

This experience enabled us to plan, build, equip and conduct what is conceded to be the most up-to-date and best-equipped plant in the world for the production of Anti-Hog Cholera Serum and Hog Cholera Virus, a picture of which is reproduced on this page.

Our record of several million c. c. sold and used within the first year after production commenced *without one single complaint* of bad results or lack of realization of expected good results, is also due to that same more than ordinary knowledge of the proper conduct of laboratory processes which our organization possesses.

This same laboratory (and field experience, too) leads us strongly to urge the use of Refined Germ-free Serum.

Measure for measure, a properly prepared, clear, sterile serum gives greater protection than the old type (defibrinated blood) serum does, because all the inert, solid constituents of the blood have been removed.

This refining process does not remove any of the immunity-producing substances.

It is the same type of serum as Diphtheria and Tetanus Antitoxic Serums (the "Globulin" type is not referred to in this connection), and one might just as well argue for the use of a contaminated Anti-Diphtheritic Serum as to argue for the use of the old defibrinated blood type of Anti-Hog Cholera Serum.

There is only one valid argument for the old type of serum, it is cheaper to produce and can therefore be sold for less.

But *this is offset by the greater absorbability of the* Refined Serum, its freedom from the possibility of abscess formation and discoloration of the flesh at point of injection, and its 20 per cent greater potency.

CUTTER'S RE
ANTI-HOG C

Produce

THE CUTTE

BERKEL

"THE LABORAT

A General View of One of the Largest and the Mos

Cutter's Refined Germ-free Anti-Hog Cholera Serum is 50 c.c., 250 c.c., and 500 c.c. bottles, at 2½ cents per c.c. This was made to popularize this superior product. We pay express c

Cutter's Defibrinated Blood Type of Anti-Hog Cholera Seru plied in appropriate size bottles at 1½ cents per c.c. It is th of this type that can possibly be produced. We pay express c

Hog Cholera Virus for use with either type of Serum i 50 c.c. bottles at 1½ cents per c.c. We pay express charges.

Let your Veterinarian order for you, and encourage him to in estimating the amount of serum to use. There is always so besides, safety lies in giving more than may be needed rather t to figure too fine.

D GERM-FREE
LERA SERUM

icense by

ABORATORY
LIFORNIA
T KNOWS HOW"

Equipped Anti-Hog Cholera Serum Plants in the World

your Veterinarian be prejudiced in favor of some other serum, ably a reason that concerns him but not you that should make nsistent that Cutter's Serum be used. So insist on Cutter's and from us should you have trouble getting it. We ship, day or earliest prepaid express.

ondence is solicited with veterinarians and stockmen who are our new Germ-free Blackleg Filtrate and Aggressin, and also g stock in Anthrax-infected districts. Cutter's Anti-Anthrax rax Spore Vaccine make stock-raising safe in such districts.

plant for the production of Anthrax Vaccine and Anti-Anthrax t and best-equipped plant in the world devoted ex- n of these two articles.

WHENEVER any producer seriously argues that the old type serum is equal to or better than the clear, sterile serum, talks glibly of the danger of "filtering out the immune bodies," set it down that either he is not equipped to produce the clear, sterile serum, or he is trying to cover his ignorance of serum values with a camouflage of words.

We produce both types of serum, and our defibrinated blood (old type) serum is the best that can possibly be produced but the sooner veterinarians and hog raisers switch over to the use of the refined germ-free, the sooner will they be in line with the advice and practice of the best authorities.

We advise, too, that while the hog raiser should know enough about vaccination operations to be a judge as to whether they are being conducted right, he should nevertheless neither do the work himself nor trust Tom, Dick and Harry.

Get a competent veterinarian, his every-day experience with the hypodermic syringe and ordinary surgical technique beat theoretical knowledge or the knowledge that comes from only occasional practice.

A good veterinarian, like a good physician, is worthy of his hire, and in the skillful handling of vaccination operations he more than saves what his fees amount to.

We have just issued a special pamphlet giving the latest in the theory and practice of proper procedure in the administration of serum and virus and the proper handling of animals before, during and after vaccination.

It was intended more particularly for the veterinarian, but it should also be in the hands of every hog raiser.

If the hog raiser reads it carefully he will know that he is not qualified or prepared to be anything but a lay helper in properly conducted work; but he will also know whether the operator is really up-to-date in his conceptions and practice.

Write for this pamphlet giving "Special and Detailed Information Concerning Hog Cholera Immunization," *also for booklet*, "Hog Cholera Prevention."

Whether the old or the new type serum is used, *stockmen should insist* on the use of Cutter's Serum and Virus, because they are made by "The Laboratory That Knows How," and in not one single instance have they failed to give satisfactory results.

Owners of purebred swine should insist that Cutter's Refined Germ-free Serum be used. For it is "penny wise and pound foolish" to pay big prices for purebred boars and sows and then trust the lives of their progeny to the old type serum when for a few cents more per dose a safe and absolutely germ-free serum may be used.

BIG BULL

The TRACTOR WITH THE PULL

12-H. P. ON THE DRAWBAR
24-H. P. ON THE BELT

The perfected light tractor for general farm use. Over 15,000 Big BULL Tractors now in successful operation.

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The Big BULL is a deep-tilling sub-soiler. The Bull wheel running in the furrow does not pack the soil.

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Lock Seamed and Soldered

There is a tremendous difference in surface pipe. This is appreciated most by the man who has wasted time and money on inferior makes. If you want absolutely the strongest and best surface pipe you can buy, select

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It has many distinctive important advantages you can't afford to overlook.

The Madewell Long Lock Seam is made doubly sure and strong by soldering the entire length. A better seam can't be made. The Madewell Lock Seam Sleeve—used in Madewell pipe only—is decidedly stronger and smoother than the old fashioned lap and riveted seam used in other pipe. This feature alone puts Madewell Pipe in a class by itself.

Send for Free Booklet—which tells just how Madewell Pipe is constructed

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Use ANTI-URIC, the famous ROOT and BERRY remedy for the cure of RHEUMATISM, catarrh of the stomach and the purifying of the blood; will assist the kidneys; has cured thousands. Contains no opiates or chemicals, and the most delicate stomach can take it. An outfit (two weeks' treatment) contains an 8-ounce bottle of liquid, a box of tablets for internal use and a 1-ounce bottle of oil especially prepared for MASSAGING the parts affected. Results guaranteed or money refunded. Price $1.50 per outfit. If not at your local druggist we will send prepaid by Parcel Post, C. O. D. Write today.

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The full series of high boiling points in "Red Crown" makes power and mileage *sure*. Look for the Red Crown sign.

RED CROWN GASOLINE

STANDARD OIL COMPANY (California)

The Gasoline of Quality

Our Venture With Sheep

How We Made Good on the Range in Two Years.

WHEN Fred and I began to wish for thousands of white, woolly Shropshires, we had no place to put them. The ranch we lived on was not all grazing land, much of it had grown up in brush and would not keep over six hundred sheep.

One day my husband came in greatly agitated. The finest stock ranch in our part of the world was for rent. The former renter had had disease among his cattle and they had died like flies, and, eager to return to the Southland, where he was reared, he had given up the place.

The ranch had grass knee high in many places and, viewed from the summit of Burned Ridge, was a veritable land of heart's desire. We had $1000 in the bank, enough to pay the first year's rent on 4500 acres of good grazing land.

Filled with the spirit of adventure, we leased the new range for the period of five years. We were young, we were willing to work, the world lay before us. The next move was to borrow the money to stock the new place. My husband went direct to the bank at our county seat and, after being duly identified, asked the bank to loan us $5000, the sheep on the home place and the sheep we were to buy furnishing the security. They said, "Yes, as soon as the stock is found, we will make out the check."

Had to Pay High Prices

It was hard to find sheep. No one had any for sale, and those which were for sale were offered at fabulous prices. In two months' time we found them at our very door, 1000 ewes at $5 a head. Today they are worth twice as much. And so we made the venture.

I stayed at the home place and my husband stayed on the new ranch. But it was not all clear sailing—there were rocks ahead. Our new place had no good fences, and sheep, which have the home spirit deep within them, have a great desire to go back to the place from whence they came. My husband had to be constantly after them.

The fences had to be rebuilt in the quickest possible way, so patent fencing was strung up between posts, the owner paying for the fencing and we contributing the labor.

Take Care of Home Ranch

Often I did not see Fred for weeks at a time. In the meantime I cared for the children, gardened, kept house, Grandma Charles milked and I fed the four horses. To me that was the biggest venture of all, for, as a young girl, I was dreadfully afraid of any kind of a horse. Now I could go up behind the two big work horses, put the halters on them, take a pitchfork and give them their hay.

One morning I heard a great disturbance in the barn. Going in as quickly as possible, I opened the door and saw that one of the colts had gotten his leg over the halter rope and constant struggling had drawn his head taut against his body. I was afraid to go into the stall behind him, but knew that every moment counted so climbed into the manger from the front and with my knife cut the rope and let him free. That taught me a lesson as to how a horse should be tied—with not too long a rope.

Our first year was not so successful as it might have been, owing to late rains in the spring while the ewes were lambing. Many of the baby lambs died. However, wool was selling at a wonderful price and we paid off $2000 of our debt.

How We Prospered

Wool has reached 85 cents per pound. Our debt belongs to the past, we have over $10,000 invested in sheep and $2000 in the bank.

Our landlord, who is one of the most generous and reasonable of men, is going to build us a sheep shed, so that the sheep will have a shelter from the elements. We have raised an abundance of hay to feed them through the winter and our methods will not be haphazard as they necessarily were in the beginning.

I have run on apace with my story, skipping many of the important happenings, for during these busy years another son and daughter came to our house. No one knows, unless they have gone through a similar experience, what it means to welcome a little girl after the advent of three boys. Every family should have a girl, not only for the companionship and help to the mother, but also as a powerful influence for good over father and brothers.

Buying a Car

This year we will indulge in our first extravagance—an automobile. Our country is a country of distances. Whenever it is necessary for my husband to go to the county seat on business, the children and I will be able to enjoy the outing with him.

And so I have worked side by side with the man I married, for better or for worse. A great deal of our ambition and ultimate success is due to our children. Perhaps if they never had come, we would still be treading the commonplace way of contentment on $700 a year.

We are still young and can peacefully educate and watch our children develop. I am fond of a pretty gown and an attractive hat, and I still take pride in powdering my nose.

When I hear Fred say to our little band, "Boys, Mother is all right," I feel my cup of happiness brimming over.—Anne Page, Plantations, Cal.

Bits in the Mouths of Troublesome Cows

WHEN visiting a neighbor a few weeks back I noticed that the family cow had a stick tied in her mouth the same way that a horse wears a bit, and asked the reason for it. The owner explained that the cow was given to bloating and that the stick held down the back of her tongue and let the gas out of her stomach when she started to bloat.

Cows that suck themselves can be stopped by using a short piece of small pipe in the same way, first boring holes here and there all over the pipe. Then when the cow starts to suck, the air will come from the ends of the pipe, through the small holes into her mouth, and there will be no pull on the teat, so no milk will come out and she will give it up as a bad job. According to this system a cow that bloated easily and in addition tried to suck herself could be cured by applying a pipe to her mouth as a bit after it was fixed up as described above.

Hog Cholera Serum

AS serum for the prevention of hog cholera is being used by a great many up-to-date swine raisers in these times, it is well to set forth the advantages of sterile serum in intrastate trade, which are given as follows by a Berkeley laboratory:

1. Greater absorbability. The removal of all the solid constituents of the blood from the sterile product makes for rapid absorption. Slow absorption frequently produces discoloration of the meat around the site of injection, and if the animal should be killed before this absorption has completely taken place this discoloration would show in the dressed meat and affect the sale price.

2. The sterile serum is 20 per cent more effective, volume for volume, because of the elimination of those solid constituents that have no immunizing value.

3. The sterile serum has better keeping qualities, for being sterile it cannot undergo change, and it can be kept for a period of about two years without being refrigerated.

4. It absolutely does away with the danger of abscesses, and abscesses incident to the use of an insterile or contaminated serum have the effect of stunting the animals and frequently destroying a whole ham. It is true that we have never had an abscess reported following the use of our defibrinated blood serum, but it is also true that abscesses have not uncommonly followed the use of insterile serum in the past.

Pig Prospects Poor

ALTHOUGH the Government has been making quite a strong campaign on this coast for more pig production, it must be confessed that our stock raisers are taking little interest in the movement.

Pig pledges have been sent about among the stock-raising communities and a good many of them have been signed, particularly in the San Joaquin and Sacramento valleys, but when we come to make close inquiry as to the true situation we find that this year's production will amount to less than half of that of a normal year.

There is no denying the fact that the demand for pork is going to be enormous. It is enormous now. But there seems to be nothing in the situation to tempt the pork producer. He is a queer bird, anyway. He argues that feed prices are so high that there "won't be nuthin' in it" for him, overlooking the fact that his product will command double what it has commanded in this State for many years.

"The price of pork products is out of all proportion to the price of feed," said one buyer the other day, "and yet we can't induce men to get in and raise more swine. They'll be sorry though, for those who remain in the game are going to make big money."

Every gardener will get greater results from his garden by making a plan for it before the planting season comes. It will save much time and trouble in planting and handling the garden and will make the work much more convenient, efficient and satisfactory.

The United States food administration wishes to place the Irish potato every day in the year on every table in America. Potatoes furnish nourishing food, mineral salts and a corrective element to the diet. They are available the year and reasonably cheap.

Fads in Farm Horses

THE farmer knows his business, but oftentimes the other fellow attempts to tell him what he needs and sometimes misleads him for a while.

A few years ago the breeders told the farmer that the little, fine-boned, quick-maturing Poland China was the hog for him to raise and they became such a fad that a yearling boar of that kind sold at a breeder's sale for $4200, and that a farmer bought a half interest in him, but he was not a successful farmer and is not farming now.

The man that sold the hog was a well known breeder, but failed as a breeder. So it is easy to see that the extreme proposition along any line is a dangerous one.

Farmers are now saying they can make no money raising horses. They have paid $2000 and $3000 for the extreme heavyweight draft horse, only to find it a losing deal and to have a short-lived horse in service because abnormal animals are short-lived.

On the other hand the light horse men insist that the speed horse was the kind, and when the farmer became disgusted with the loss in the extreme heavy horse he was just as bad to turn to the extreme lightweight one. Hence the horse business of the country has been played backward and forward from the ton horse to the half-ton horse and as a result the farmers are getting along with an in-between weight horse with a lack of conformation as a result of extreme breeding.

The market quotations this year have shown many times that the demand by the farmers has been for a horse weighing from 1200 to 1400 pounds.

Recently, one of the leading agricultural papers stated that "The outlet is fairly good to the East and particularly to New England for farm chunks weighing from 1200 to 1400 pounds." The same article said: "There is a limited demand for commercial horses for city trade and almost no inquiry for big heavy drafters."

Most of the inventions worth while have been within the last fifty years and no new breed of horses has been established within one hundred years and while the automobile has taken the place of the 1000-pound horse and the tractor and trucks of the 2000-pound horse, leaving only the in-between horse for business, that has not been interfered with, namely the medium-weight horse.—W. B. Carpenter.

Facts Worth Knowing

The lowly peanut has developed into an industry of some importance. The 1917 crop in the United States is valued at $225,000,000. Besides still being the standard circus delicacy, the peanut is now turned into vast quantities of oil, butter and flour.

According to James W. Gerard, former United States ambassador to Germany, the Prussian national air, "Heil dir im Sieger Kranz" (Hail, thou, in the conqueror's wreath"), is sung to the same air as our own familiar "My Country, 'tis of Thee" and the British "God Save the King." The music was originally written for a French monarch, Louis XIV.

The dry bed of a former lake in the Nevada desert is considered by motorists the finest, largest and safest speedway in the world. It is twelve miles long, three miles wide, and its surface is as smooth, level and hard as rubber.

A cross-country aerial record was made recently when a British bombing plane was driven from England to a base in the Mediterranean, a distance of about 2000 miles, in 31 hours of actual flight. Six men were carried.

A cake, four feet in diameter, one foot high and weighing 360 pounds, was sent recently from New York to Paris to be served at a Y. M. C. A. dinner for 2400 soldiers.

This Saw Cuts 25 Cords of Wood in One Day

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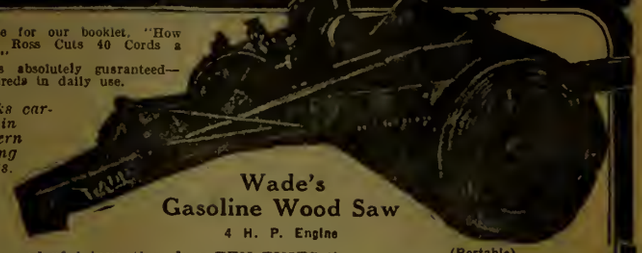

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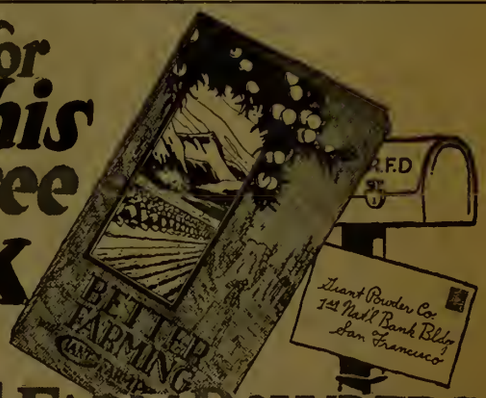

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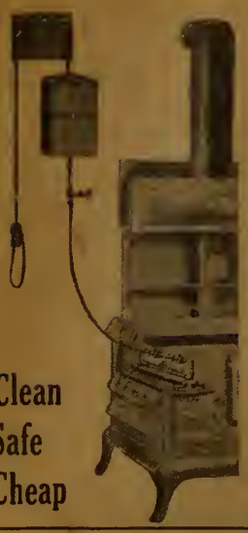

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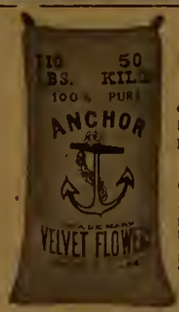

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Plant Diseases and Pests

Here's How to Destroy Them

ALL plant diseases work practically the same way. They rot or transform the plant tissues. It is easier to prevent them from getting a start upon the plant than to check them after they have started. We spray as a preventive rather than as a cure.

Bordeaux mixture is the best spray for plant diseases. Make your own Bordeaux mixture. Take a fruit jar, crock or wooden pail. Put two quarts of water in this vessel. Put half a pound of copper sulphate in a piece of cloth and hang it to a stick laid across the top of pail or crock, suspended in the water. In another pail put one-half pound of quick lime, add warm water to dissolve, making a thick, creamy solution. Strain each dissolved solution through a cloth, and pour the two solutions into a third vessel at the same moment, so they will come together and mix at the bottom of the vessel.

For Potato Blight

For blight on potatoes, use a spray made of 4 pounds of lime, 4 pounds of copper sulphate to 50 gallons of water.

Apply Bordeaux mixture on a calm day, so it will not be blown away by the wind. Use a pump with plenty of force and a nozzle that will throw a fine spray. Spray all parts of the plant so that a fine film of the spraying solution used will cover the surface of the plant tissues.

Potatoes should be sprayed with Bordeaux when they are about 6 inches high. This is done to prevent potato blight from attacking the plant.

Navy beans and tomatoes should also be sprayed early with Bordeaux as a precaution or preventive against blight and wilt.

Have a Spray Pump

A small hand-bucket spray pump is very good for spraying and for other general uses, such as spraying the chicken coop or whitewashing the cellar. A tin pump will do the work in the small garden. I have seen a whisk broom used, the liquid spray being applied by soaking it in the liquid and then switching the liquid upon the plant.

Powders are dusted upon the plants or blown against them by means of small atomizers or dust blowers. These sprays will smother the insects by stopping up the breathing pores.

Fig. 2—Hand Bucket Spray Pump. Best for Home and Garden Use

Potato Blight. A fungus disease of potato

To Kill Insects

Chewing insects are destroyed by spraying the plants upon which they feed with an arsenical poison, Paris green or arsenate of lead. Of these, arsenate of lead is the better and more extensively used. Arsenate may be obtained in a paste or powdered form. If you use large quantities get the paste form, but where small quantities are used the powdered form is better. The paste hardens and deteriorates while the powder keeps its strength. The powdered form may be dusted upon the plant, or, when a spray pump is available, made into a paste and then diluted with water. A large tablespoonful is enough for a gallon of water. If it is strong enough it should leave a white film on the leaf when dry. All chewing insects can be killed with this poison.

Fig. 1—Cheap spray pump, made of tin or brass. Throws a spray as fine as mist. Used to spray animals and crops

Getting Rid of Cut Worms

The cut worms which chew on the stems and roots of vegetables at the surface of the ground are killed by scattering bran mash poisoned with arsenate of lead on the ground around the plant. The cut worm will eat this poisoned bran.

Cabbage, cauliflower, etc., should not be sprayed with arsenate just before they are to be eaten. In such cases hellebore can be dusted upon the plant, or use a tablespoonful in a quart of water for spraying.

California Cantaloupe Crop

THE area planted to cantaloupes in Imperial Valley this year is estimated to be 10,896 acres, as compared with 12,939 in 1917, a decrease of 2043 acres, or about 15 per cent.

Cantaloupes are doing exceptionally well. Reports from all parts of the valley indicate excellent prospects for good yields. The first cars began to roll between May 15th and 20th, express shipments being ready early this month. Insects and blight have done no damage, and with the exception of a few strong winds conditions have been decidedly favorable.

The Turlock district in the San Joaquin Valley has 3000 acres in cantaloupes and the crop is said to look well.

Painting Your Car

MOST farmers' automobiles are allowed to go too long without painting because of the fact that the owners dread the expense of having some one to do what they consider a very difficult and expert task. Well, it simply isn't if you know anything about painting at all—at least, that was the experience of a Farm and Fireside man who tackled the job and got away with it in fine shape.

"Last year," he says, "we painted our five-passenger car, which was purchased new in 1913. It was the first time it had been repainted, and no doubt the task would have been much easier had it been done a year earlier.

"The tools required were putty knives for scraping off old paint where necessary, thin-bladed case knives, steel wool for removing rust and paint, and sandpaper.

"First we took the car apart, removing the top, mud guards and fenders from the body and the body from the chassis. The body was put on a pair of trusses in the garage, and the chassis pushed outside to clean. The fenders and mud guards were taken apart so that every particle of rust could be removed.

Removing Rust and Old Paint

"The fenders and wheels were the only parts that had any water used in cleaning; all the rest was dry cleaned. These were first washed with automobile soap, then with clean water, and allowed to dry. The knives and steel wool were used to remove the rust and chipped paint, after which the surfaces were smoothed down, first with coarse and then with fine sandpaper. The grease about the wheels was cut with gasoline and picked out of the corners with the point of a knife.

"Where the paint on the chassis was firm and in good condition it was left, but was rubbed thoroughly with the steel wool and sandpaper.

"The body was cleaned in a somewhat similar manner, except that all the paint was removed with the blades of flat knives. This was the most laborious part of the work. The surface was rubbed firmly with the steel wool until it took on a shiny finish, then sandpapered and rubbed clean with a dry cloth. It took practically two days to clean the car. When this was done, the car was ready to paint.

Three Coats, Then Varnish

"We used the same colors of paint that were on the car originally, ray for the chassis and black for the body. We thought it would be less difficult to make a presentable job than if different colors were used.

"The first coat was rubbed on thoroughly, and allowed to harden about two days. It was very hard and dry when the second coat was applied. When the second coat had dried there was not much gloss to it, but it had covered up smoothly all the scratches and irregularities of the body. A third coat was applied to the chassis, fenders and mud guards.

"About four days after the painting was done the entire car was given a coat of a high-grade varnish. This gave it a fine, glossy appearance, and helped greatly in preserving the paint and retaining the sheen."

[illegible] farmers seem to think that [illegible] instructions to make war gardens [illegible] at the amateur city [illegible] The California College of [illegible] points out that not [illegible] who live right out in [illegible] are feeling them[illegible] of a home garden [illegible] thing which is [illegible] to most Pacific [illegible]

The Tractor for all the World

ALL year 'round utility characterizes the Cleveland Tractor. It performs its varied duties regularly, season by season. It is a "man-of-all-work."

It plows. It harrows. It plants. It reaps.

And it does all of these things *faster* and *better* than was possible before.

But that isn't all. It does the thousand and one other things that require mechanical power. It pulls your manure spreader. It runs your saw. It operates your pump. It cuts your ensilage. It drags logs and lumber. It pulls road machinery. It does practically everything that horsepower and stationary engines can do. It develops 12 horsepower at the drawbar for hauling and gives 20 horsepower at the pulley for stationary work.

Cleveland Tractor

The Cleveland Tractor plows 3½ miles an hour—eight to ten acres a day—which is equal to the work of *three* good men with *three* 3-horse teams.

It travels on its own endless tracks which it lays down and picks up as it goes along.

It operates easily over gullies, ruts, and uneven ground of all kinds. Because of its 600 square inches of traction surface it goes over sand, gumbo, mud and slippery clay without packing the soil, without sinking, miring or floundering.

The Cleveland weighs less than 3200 pounds and is so small that it can be readily driven under and among small fruit trees.

It steers by the power of its own engine and will turn in a twelve foot circle.

It requires less space to house than a single horse.

The Cleveland Tractor was designed by Rollin H. White, the well known motor truck engineer—and is manufactured under his supervision.

He has designed the track for long service. The sections are constructed to prevent filling or packing with mud and protection is provided to prevent dirt and mud from falling into the track. The sections are joined with hardened steel pins which have their bearings in hardened steel bushings.

Gears are protected by dust-proof, dirt-proof cases and are of the same high quality as those used in the finest trucks. Materials used throughout are of the best.

Every step must be taken this year that will speed up farm work—that will enable machinery to replace muscle—that will help produce—and increase harvests.

The Cleveland Tractor is already bearing a big share of the war burden. Farmers are producing larger crops because of the Cleveland—*and are making greater profits.*

You too can help the nation meet the food emergency—and incidentally make more money for yourself. Write to us *now* for complete information and the name of the nearest Cleveland dealer.

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For Ten Cows, Size 10 ins. by 17½ ins.

6 Sheets for $ .25, Postpaid 25 Sheets for $ .75, Postpaid
15 Sheets for $ .50, Postpaid 50 Sheets for $1.25, Postpaid
100 Sheets for $2.00, Postpaid

If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.
Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

ORCHARD AND FARM
Examiner Building, Los Angeles, Cal.

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FRANCO AUTO-TRACTOR $425

AS the United States Government has ruled that tractor notes may be accepted by Federal Reserve banks, the Auto-Tractor Co., sole distributor of the Franco Auto-Tractor, has arranged to sell a limited number of these tractor attachments (track-layer type) on terms. They are easily attached to any Ford touring car or roadster. With slight changes they can be fitted to other makes of automobiles.

This little marvel made a wonderful showing at the Davis Tractor Demonstration. It travels on unplowed ground instead of in the furrow, weighs 1700 pounds, has a traction surface of 560 square inches and grips the ground with 16 grousers or calks. Bearings carry a pint or more of lubricant each. Majority of the parts are 300 per cent oversize.

It is the only tractor having a triple gear reduction—a basic patent feature.

It is sturdy, strong and durable. New parts are cheap and quickly obtained as machines are built entirely in Oakland by the Straub Manufacturing Co., sole licensee under the Franco patents. All new parts needed in a year furnished for $30. Shipments made in from 10 to 30 days.

Pulls a six-mule load all day, and then works all night for good measure. Plows with two or three bottoms. Pulls 8-foot disc harrow, large spike tooth harrow, grain drills, binders, hay loaders, mowers, rakes, wagons, 6-foot combined harvester, etc.

The Franco Auto-Tractor can be detached from your Ford in 20 minutes, giving full use of car.

The cost, on time, is $450. Payments, $100 with order and $50 a month. (Cash price, $425.) You can work two or three days for your neighbors and earn your payments.

Send $100 now to insure delivery. Orders filled in rotation.

Full information on request. Local representatives wanted.

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No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

Tractor Problems

Is your tractor giving you any trouble? If so, write to Tractor Editor, Orchard and Farm, Examiner Building, Los Angeles, and a reply will be mailed to you from our expert. If you have no objection both questions and answers will be printed in this department.—The Editor.

MY engine seems to be losing power. It makes a harsh knocking noise at times, particularly when it is loaded up to heavy work in the field. What can I do so that it will regain its power and also to make the noise stop?—J. B. T., Exeter, Cal.

Where a tractor engine develops a knock and does not seem to have the normal amount of power, it is possible that the cylinders are coated with carbon. If such is the case, remove cylinder head and scrape the carbon from piston heads, walls of combustion chamber and from cylinder heads. It is advisable to grind the valves at the same time. When the motor is carbonized it is well to examine the piston rings, as usually they will be found carbonized tight in the grooves. This carbon should be removed and the rings should be given free play in their grooves.

Engine Overheats

WHAT shall I do with my engine? It heats up to beat the band. The trouble seems to be in the cylinders.—L. K. O'S. San Fernando, Cal.

Here are some of the causes of overheated cylinder and piston: Late spark, poor lubrication, insufficient cooling water, gases escaping past piston rings or pre-ignition, cause overheating, which is indicated by loss of power due to slowing up of engine speed and a sluggish, laboring action. Escaping gas is indicated by hissing noise, pre-ignition by a decided pound. You will find remedies for these conditions in your instruction book.

Life of a Tractor

READING in Orchard and Farm about the probable life of a tractor it struck me that you gave no specific examples of how long a machine of that kind might reasonably be expected to last. Can you cite an instance of tractor longevity—a machine standing up to work for any long period of time?—O. B. M., San Bernardino, Cal.

Yes, here is one: A rancher near Neenach, Cal., bought a second-hand machine early in 1915 which had been doing service since the winter of 1913, and had covered up to the time of his purchase 1000 acres. Up to May, 1917, he had plowed and harrowed over 3000 acres. Reports are not available as to the acreage covered since, but the machine is still doing good service and the owner reports that the only repairs necessary after 1800 acres of continuous work consisted of taking up the engine bearings twice. He is considering the purchase of a new model, but intends to use it in conjunction with the old one, as he says he has more than enough work for one machine.

Hostler Work Necessary

I AGREE with your correspondent, J. B. R., that there is too much hostler work about a tractor. I have seen tractor owners monkey for hours in the morning with their machines and make a late start in the afternoon. Is there any way of cutting down this drudgery?—J. P., Colusa, Cal.

The only way that we can suggest to cut down hostler work on a tractor is to take better care of your machine while you are running it. The more unnecessary strain you put upon it the more "monkeying" you will have to do afterward. You ought to be able to do all the necessary oiling and adjusting in half an hour each day on an average. If you take more time than that you have a poor machine or else you are a poor mechanic. Do your oiling and fixing over night, not in the morning. Grease goes to the spot better when the machine is warm. Keep the dust and dirt out of your oil, and don't be too fussy with your tractor. Plenty of lubrication is enough. You don't have to be filling the grease cups all the while. As a matter of fact we know operators who enjoy hostler work, but these are not the men who put some part of the machine out of business while adjusting another part. They study their instruction books closely and work intelligently.

Women as Tractor Operators

I SAW a picture in a paper the other day showing a woman running a tractor and it made me laugh. Perhaps she was a movie actress. But anyway it seemed ridiculous to me. I saw, too, in Orchard and Farm what you printed about the San Fernando tractor school where girls as well as boys were learning how to run the machines. Now, Mr. Editor, is there anything in such work for women? Why employ them at such labor? Who would entrust an expensive machine with one of them?—T. R. McB., Selma, Cal.

There is nothing laughable to us about a woman running a tractor. On the other hand the necessity for her to do any kind of farm work as a hired laborer seems sad, but these are war times. England has women tractor operators and they are said to be as good as men. Elsewhere in this issue will be found the opinion of a big rancher in the Elsmore district as to girl operators of machinery. He says he would rather have one of them run his machine than a man. To be sure, under certain conditions tractor work is rather heavy for women, but ordinarily they should be able to master the machine and run it as well as a man. As to endurance and care those are other matters.

Don't Race Your Engine

IT IS important not to race or speed up the engine when it is warming up in the morning, and also on account of the fact that the cylinder walls may have been drained almost dry by standing over night and a sufficient supply of lubricating oil may not be present to insure proper lubrication.

It is a very simple matter to score a cylinder wall or piston at this time when the oil film between the two is practically disintegrated.

This condition is accentuated further by the fact that lubricating oil is heavier when cold and therefore not so liable to fulfill its function as when the engine properly is warmed up.

The keen interest taken in the tractor demonstrations on this coast augurs well for the future of the tractor in the field of cultivation. There is no doubt that government propaganda has helped this interest. The Food Administration has been particularly active in urging the merits of the tractor to speed up production

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Clear your stump land cheaply — no digging, no expense for teams and powder. One man with a K can rip out any stump that can be pulled with the best inch steel cable.

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My herd is headed by Los Royal, son of Winona Champion and grandson of Laurel Champion; also Tehama Boy, son of Panama Lee, the 2d, and grandson of Lee's Artful Premier 1st. Stock from these herd boars are sure breeders. Write for further information to

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BOX 98, RED BLUFF, CAL.

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Texas school lands for sale by the state $2 an acre, 5c an acre cash, and no more for 40 years, but 3 per cent interest, small postage for further information.
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Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.
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1101 5th St. Oakland, Cal.

FISH

Salmon in brine 100 lbs., $11.50. Shipping weight 175 pounds. Smoked salmon, 20 lbs., $3.25. Dried codfish, 10 lbs., $1.75. T. A. Bean, 1322 Winslow Place, Seattle, Wash.

Wool Outlook Not Promising

WE must hustle around and raise more sheep or wool at a dollar a pound will be a [illegible]re.

There are some rather discouraging [illegible]res, from the consumer's point of [illegible], sent out by A. F. Douglas, [illegible]rman of the Chamber of Com[illegible]ce of the United States, recently:

The sheep industry in the United [illegible]tes must either adjust itself to the [illegible]anged economic conditions of this [illegible]y or continue the decline which has [illegible]n its portion in years past. Such [illegible] the conclusion reached in a report [illegible]ed today on the sheep and wool [illegible]dustry by the Committee on Sta[illegible]tics and Standards of the Chamber [illegible] Commerce of the United States.

The principal remedies suggested [illegible] the report to arrest the present [illegible]ady decline in our production of [illegible]eep are, first, the use for sheep [illegible]zing of the agriculturally worthless [illegible]d cheap cut-over timber lands of [illegible]e north, northwest and south; sec[illegible]d, the more general and systematic [illegible]sing of sheep on farms, where [illegible]eep raising has been hitherto neg[illegible]ted largely because of frontier com[illegible]tition; and third, continued use of [illegible] great ranges of the west to their [illegible] capacity. It can be done. It is [illegible] a question of education.

"The cause of the decline in the [illegible]ber of sheep on our western [illegible]nges is the growth of dry farming, [illegible]d the consequent reduction in the [illegible]razing range. The industry has come [illegible] depend on that range and it has [illegible]t yet adjusted itself to the idea [illegible]at it will now have to seek part of [illegible] range elsewhere, on cut-over tim[illegible]r land and on farms all over the [illegible]untry

"In 1900 we had in the United [illegible]tates 80 sheep per capita. In 1917, [illegible]he figure dropped to 46 per capita. [illegible]gain mutton is 21.8 per cent of the [illegible]at food of Great Britain. It is 3.78 [illegible] cent here. The reason presum[illegible]ly is that Great Britain with no [illegible]t western ranges to depend on, [illegible]s solved the problem of raising [illegible]eep cheaply and abundantly on the [illegible]rm. We would use mutton exten[illegible]ely under the same conditions.

"The figures with regard to wool [illegible]oduction are equally striking. In [illegible]0 we produced 4.29 pounds of wool [illegible]r capita. In 1917 only 2.72 pounds [illegible]r capita.

"We import now 50 per cent of our [illegible]ool consumption. We ought to [illegible]oduce that at home; and we can if [illegible]e will.

"Sheep increase rapidly—from 50 to [illegible] per cent annually as compared [illegible]th the number of ewes. It is, there[illegible]re, natural to ask 'why can't we get [illegible]e necessary increase at once by con[illegible]rving the lambs instead of sending [illegible]em to market?'

There are two reasons. One is [illegible]t the western ranges already have [illegible] the sheep they can feed without [illegible]terioration of the range. The other [illegible] that many sheep raisers depend for [illegible]r income as much on selling lambs [illegible]elling wool. The industry is [illegible]ely on that economic basis.

It comes, therefore, largely, down [illegible] question of using for sheep rais[illegible] our cut-over timber lands and our [illegible]s That sheep can be raised [illegible]ntly and profitably on farms [illegible]ent from the experience in Eng[illegible] Sheep-killing dogs have always [illegible] one obstacle to this; but the dog [illegible] is doubtless soluble. Dogs [illegible]bout 100,000 sheep in States of [illegible]ssippi in 1913."

[illegible] recent meeting of Sacramento [illegible] there was a spirited discus[illegible] the subject, "Production, Con[illegible] or Distribution, Which Is [illegible] Vital Question?" State [illegible] was present and partici[illegible] in the discussion. It was voted [illegible]n was the most impor[illegible] without it the others would [illegible] Their annual picnic [illegible] on May 1st, and on the 25th [illegible]

Our New, Invincible Navy

Splendid Work of Josephus Daniels

UNDER the wise guidance of Josephus Daniels, the best naval secretary this country ever had, the American sea forces are being splendidly co-ordinated and equipped.

At the beginning of the war the United States navy was third in capital ships among the navies of the world. It is now second, and is growing faster than any other navy.

Owing to the destruction of commerce by the submarine in the last three years and the great output of new American shipyards this year and next, it is possible, if not probable, that within a few years we shall have a supremely great navy and the greatest merchant marine in the world for the first time in history.

Germany now sees where sea supremacy in the future will lie. She knows the knell has been tolled of the era of sealust and of the piratical subjugation of peoples; that the spirit of the American constitution will purify the whole conception of sea power, that fleets of war and fleets of merchant ships must hereafter abide by new rules.

Big New Ship Every Three Days

During the second week in May the United States Steel Corporation launched the first of the great steel ships from the plant created since the war near Newark, and ten days later the first ship from its yard at Pensacola, Fla., a new 5000-ton ship will be completed every three days as long as the war lasts. The important fact is that these ships are all being built for the Government, and although merchant ships will have naval gun crews, naval wireless operators, officers of the Naval Reserve, and perhaps eventually crews of enlisted men.

Before the end of the year the navy will have 228,000 enlisted men, 14,000 men in training schools for officers, 24,000 apprenticed seamen and 10,000 aviators. The enlisted strength of the navy will be more than 400,000. This is the equivalent of what is understood to be the personnel of the British navy at the present time.

Investigators Find No Defects

Rear Admiral McGowan, head of the Bureau of Supplies and Accounts of the Navy, has displayed such admirable judgment and superior executive ability in handling the supply department for the equipment of men and ships that it was truly said that the navy was ready to go at once for a long sojourn at the North Pole or at the Equator. It had heavy garments for the wintry North Sea and linen suits and ice-making machinery for the tropics.

So well have the various naval bureaus worked that a committee of Congress, raking over the whole war machinery last month to find defects, could see absolutely none in the plans, preparations and execution of the Navy Department.

Some Naval Figures

It is a highly technical service, requiring life training, study and practice. But when the emergency of war came the entire machine expanded automatically nearly five-fold and was found equal to the emergency.

In peace we have a great national university at Annapolis, teaching, besides efficiency in war, "honor, duty, country" at all times, and believing that only the very highest type of man is good enough for the navy. The war required the expansion of all departments at Annapolis and the opening of many additional training schools. Before the war there were 2000 in training at Newport; today there are 10,000 in that station. Norfolk, Va., had 1150; today, 16,000. The Great Lakes naval station 2000 before the war and 20,000 now. Yerba Buena, Cal., 850 before the war; 2000 now. These four stations have supplied 50,000 men to the navy in the first year of war. Reserve force training stations have been opened at many points between Boston, Pelham Bay, N. Y., Key West, Fla., and Seattle, Wash.

The training stations of the Marine Corps provide for 8000 men at Quantico; 3000 at Port Royal, S. C.; 2500 at Gulfport; 500 at the New London submarine base; 3500 at San Diego, and 1000 at the Naval Militia Armory in New York City.

Radio and Marine Corps

The Naval Radio Service will in the next year reveal to the world some epoch-making improvements. At Harvard University more than 2000 men are training for the wireless, and 150 for other naval specialties. Columbia University has a class in naval engineering, and another in naval hospital treatment with 400 students. Yale has established a course in naval subjects and is training reservists.

The Marine Corps, which proudly claims the distinction of always being first to get into every fight and sometimes last to stop, has been expanded from 344 officers and 9921 enlisted men to 1200 officers and 33,000 enlisted men.

The best testimony to the skill and administrative genius at the head of this branch of the service is that you never heard a word of complaint or criticism about it from any quarter, from within or without, but only pride and satisfaction.

New Seaplanes and Dockyards

The navy has developed a new seaplane adequate to new demands, one type being a 200-horsepower tractor seaplane, highly effective for scout work or bomb-dropping. A new coast patrol dirigible balloon has been perfected and a training school for pilots of dirigibles opened.

Huge naval dockyards are being constructed at Norfolk, Philadelphia, Pearl Harbor and San Francisco, and the State of Massachusetts is building another at Boston, which it will present to the navy. Los Angeles also is doing its share.

The Naval Appropriation bill now before Congress for 1918 is $1,039,660,502.84. In the thirteen months ended September 30, 1917, Congress appropriated for the navy $1,905,410,930.45. These two years'—or twenty-five months'—appropriations, slightly less than three billion dollars, are within 10 per cent of the total amount of money spent on the United States navy from its birth, in 1794, up to June 30, 1916, which period included four victorious wars, in each of which the navy played a decisive part.

Imperial Volunteer Cotton

IMPERIAL VALLEY has lots of war crops and is proud of them. It is "over the top" with alfalfa, barley, corn, cotton, hogs, coffee and sheep. Just now volunteer cotton is in the limelight. The total acreage in cotton this season on the American and Mexican sides will be over 130,000 bales which should bring in between $10,000,000 and $15,000,000.

The expense of producing volunteer cotton is considerably less than for the planted acreage.

H. C. Suttle of Los Angeles is one of the leading land owners who boasts of the splendid prospects for his volunteer crop. He has in about 500 acres of long staple. Last year his expense prior to May 1 for plowing, seed and planting was about $5000. This year only cultivating and irrigating are necessary and his expense so far has only been $1600 although hay for animals engaged in the work has cost him $10 per ton more than last year.

Volunteer crops need no men, mules or tractors for preliminary work. Like "Topsy" it "just grows."

Some years volunteer cotton is not a certainty, as the top roots are injured by sudden frosts, but this season conditions have been favorable and satisfactory results are expected.

A great advantage is that irrigation is completed by June, before there is any danger of a water shortage.

Now with 35,000 acres as estimated for volunteer cotton, the importance of the crop is readily seen. It usually produces more per acre than the planted crop and a bale per acre is counted on, 35,000 acres producing 35,000 bales at 500 pounds per bale, or a total of 17,500,000 pounds, which at thirty cents, the present average, brings in $5,250,000. Some extra item for the great valley this season!

How to Grow Cotton

HERE are some rules to be observed in growing cotton of which crop California farmers are planning to raise more and more season by season:

Preparation of the Ground—Plow deep, irrigate, and harrow thoroughly before planting.

Planting—Plant flat, unless the soil is very heavy, in which case plant on low ridges about 3¼ inches high. Rows should be about 4 feet apart. A distance of 3½ feet is satisfactory on light soils. Depths of planting 1½ to 2 inches deep. Number of pounds per acre, about 20. A corn planter wth an agitator attachment may be used.

Thinning—When plants are about 6 to 8 inches high chop out to 8 inches apart in the rows.

Irrigation—Irrigate only when the plants require it. If the plants appear wilted in the early morning water is needed. A slight wilting during the afternoon in the hot part of the summer is to be expected. However, if the ground is permitted to become very dry and is then heavily soaked the cotton plants will drop their flowers, squares and bolls. Irrigate by means of furrows between the rows.

Cultivation—Cultivate thoroughly as for other field crops.

Beans do admirably on land suited to potatoes, a light sandy soil not too rich being the best. After the potato vines begin to die, the beans can be planted between the rows. By the time the beans are large enough to cultivate, the potatoes will probably be ready to dig. By this method the two crops can be raised on the same ground and since the beans do not require a rich soil they will not be materially hindered by the previous crop.

Two ways of helping win the war: Treating seeds to kill germs and backing our boys to kill germ-ans.

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Works Like Gas--No Wicks--No Odors--No Waste--No Smoke

SAFE Patent Locks Prevent Accidental Opening of Cocks. **ECONOMICAL** One gallon Distillate will burn for eighteen consecutive hours. The Detroit Vapor Stove using Distillate will generate HEAT GREATER THAN GAS at a cost of approximately ½ cent per hour. Has no pipes to connect—can be placed in any convenient location.
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Follow the Armies and Navies, be able to read the newspaper and magazine reports of the great war intelligently by having one of these big charts, consisting of six pages of maps, in your library or reading room. Where are our "Sammies" fighting? Do you know where Uncle Sam is training our "Sammies" to fight across the sea? There are four Naval Training Stations, 32 Cantonments, 12 Aviation Fields, 13 Officers' Training Camps.
All the above questions are answered in our NEW 6-PAGE WALL CHART. These maps are beautifully engraved in colors. They are positively the finest maps of the War Zone offered to the public and contain all the Towns, Roads, Woods, Railroads, Canals, Forts, Fortresses, Aerodromes, and are very complete in every detail. The

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Arizona, the Object Lesson

(Continued from Page 3)

work is being conducted by very able men which will give the institution a wide reputation and prove to be of great advantage.

Irrigated land assessed for taxation in 1917 was 437,000 acres; dry farming and grazing, 3,500,000 acres; railroad land grants, 2,700,000 acres. The figures for 1918 will show a material increase.

Now the Object Lesson

But here is Arizona's great object lesson:

The Tax Commission reports value of certain property assessed for 1917 as follows:

Mines and mining claims	$346,000,000
Railroads	96,000,000
City and town lots and improvements	69,000,000
Smelters, mining machinery, etc	59,000,000
Lands and improvements.	52,000,000
Cattle and sheep	35,000,000

Startling increases were shown over previous years, the figures for which were:

Mining properties, all descriptions—1900, $2,600,000; 1910, $19,700,000; 1916, $216,800,000.

Railroads—1900, $4,300,000; 1910, $13,200,000; 1916, $91,900,000.

Town and city lots and improvements—1900, $9,100,000; 1910, $24,900,000; 1916, $67,700,000.

Land and improvements—1900, $6,600,000; 1910, $12,600,000; 1916, $45,400,000.

It seems to be about a fifty-fifty proposition—mining against the field.

No other mining State makes such a showing.

Arizona is the greatest copper State, and its gold districts are attracting attention. As all the world will soon be crying for gold it will take its place well along with California, Colorado and Alaska.

Miners Encourage Agriculture

It is said that the mining districts of the State last year encouraged the bringing into cultivation of agricultural lands in their localities to such an extent that the gain was greater than in the former farming districts.

In 1911, after visiting the Salt River Valley and the great dam bearing his name, Citizen Roosevelt, in an address at Phoenix said:

"The problem of our future is in the keeping of that magnificent spirit of initiative that has made the pioneer people successful in the past and joining to it the ability to use the collective power of the people to the achievement of a common purpose."

It is asserted that the work of increased agricultural production, so vital to the world, is not being pushed vigorously by many States and that the tendency is to throw the burden upon Uncle Sam and "Let George do it." Now Arizona has an able State Council of Defense. If it is given financial support it can certainly produce satisfactory results.

Arizona has good people, good newspapers, good climate, good soil, good water, good schools, good transportation and good markets. And yet with all the progress it has made with only 4,000,000 acres, exclusive of railroad grants, subject to assessment, its land interests have not been developed to the extent which its soil and water supply justify.

It should produce and export more and import less. The investment of more capital is necessary to secure a more rapid increase in staple crops.

Room for Improvement

Generally, "Homeseekers move along the line of their experience, but the example of Canada—with good laws and vigorous advertising—proves that there are exceptions to the rule.

Poor United States land laws, poor State irrigation laws and the lack of advertising have held back Arizona's agricultural development.

It is being recognized that new constructive legislation—national and State—is needed to advance land and industrial development.

More good roads are needed, comprehensive plans should be adopted to advance scientific soil culture and assist pioneer farmers and producers. United States land laws should be modified to suit actual conditions and State irrigation laws should be improved

An irrigation district law, following the California law as closely as consistent, would probably bring in millions of dollars of new money for irrigation enterprises. Modern laws for adjudication of water rights, control and administration, such as prevail in some other States, would mean less litigation, greater certainty, and better use of water supplies.

War conditions and the new plan governing railroad companies in advertising and promotion work make new methods necessary in the Pacific coast States. State immigration bureaus have done good work in other States bringing in new people and new industries.

The time would seem to be ripe for Arizona's scattered districts to "get together," and State action supplement county and city efforts. Arizona has the goods and it will pay to advertise.

Liquid Fire for Grasshoppers

LIQUID fire for grasshoppers is a method that is proving most successful for the elimination of the pests in San Bernardino county, California, by County Farm Adviser H. F. Bahmeier.

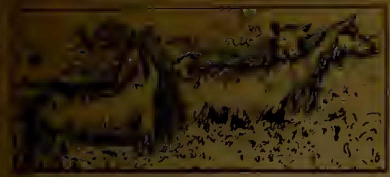
Last season the hoppers were a decided nuisance in this section, the Los Flores ranch alone losing fully 150 tons of alfalfa hay through the work of the pests. Mr. Bahmeier decided to use a method that had succeeded in Australia where he was formerly engaged in agricultural work for the government.

The eggs of the grasshopper are laid as soon as warm weather approaches, generally on sandy knolls or where the grass is short, in order that the sun's rays may hatch them quickly. It takes about 10 days from the time the eggs begin to hatch until the colony has matured enough to seek its own food and to move quickly from place to place. Therefore, if these colonies can be found and destroyed before they migrate to their feeding grounds, it means an end of the pests.

With some 20 ranchers and a good supply of distillate sprays, fashioned much like a plumber's torch, Mr. Bahmeier sallied forth. The big sprays threw forth a flame fully [illegible] feet wide and the smaller sprays were used for trimming up any small number that might be overlooked by the others

Little trouble was encountered in finding the colonies and with the broad sheets of flame sweeping the ground, the farmers advanced, leaving a trail of baked grasshoppers behind them.

The colonies were located principally in pastures lying adjacent to the alfalfa fields, and so successful were the men under supervision of Mr. Bahmeier that in one day they had cleared up 79 nests of young grasshoppers. The method has proved so successful that Mr Bahmeier is preparing to use the liquid fire again in an effort to entirely eliminate the pests from this vicinity—James Brown, San Bernardino Cal.



Keep a Milch Goat

NOT only is the keeping of a good milch goat desirable from a financial standpoint, but also from the fact that in almost any small backyard, one or two goats can be kept very nicely and with very little care, giving to their owners the cleanest and with all the most wholesome of food.

The milk from any of the popular breeds, the Swiss, Toggenberg, the Swiss-Saanen or the Anglo Nubian, is far superior in creamy richness and food value to the ordinary cow's milk; in fact, one quart of goat's milk is equivalent to about three times the same amount of cow's milk. At a recent poultry and pet stock show, which was held at the $1,000,000 Municipal Auditorium in Oakland, I exhibited twenty of our Toggenberg goats, and each afternoon and evening we displayed and distributed to the public samples of goat's milk, goat's milk cheese, and butter made from goat's cream. During the six days of the show over 3000 people drank samples of goat's milk, and the answer invariably was, "It tastes just like cream." And so it does.

Cost of Keeping

I am often asked, how much does it cost to keep a goat in the city? Can we keep one or two goats in a high class neighborhood, such as where we live? My answer is this: We feed only the best alfalfa hay, which costs at present about $32 per ton, and a very small amount of mash, which is very expensive at present. But, even with these prices, our average cost per head is about $1.35 per month, or about 2¼ cents per quart of milk, equal to cream in richness.

As to being able to keep goats in fashionable districts, I would call your attention to the recent enacted ordinance in the aristocratic city of Pasadena, where the ban has always been on as to the keeping of cows, but the city fathers encourage the keeping of goats.

Some of the wealthiest and most aristocratic families of Pasadena keep from one to six goats, and there are no limits to the number that may be kept in one place in the city of Los Angeles.

Make the Goat a Pet

Anyone who has had experience with dairy cows or who is fond of domestic pets will be successful with goats. The milk goat industry and the rapidly growing popularity of milk goats is due only to the recognition by the public of the fact that goat's milk, in these days of high costs of food for human consumption, is hard to beat.

Let us all strive in an earnest endeavor to make the milch goat, which is our most intelligent and reciprocating domestic animal, as popular with the homes of California as she is in the countries of Europe. We can justly term her, "The Wise Man's Cow."—Rae P. Williams, Oakland, Cal.

Bacon Rind for Washers

SOME time ago at a general store a few miles from Exeter, Cal., a customer came in and asked for a washer of somewhat unusual size, with a ... re ... ted of a round hole. The storekeeper had none in stock, ... of bacon rind ... n u... nd stand ... g ve full ... a e out of ... try a ...

Big New Rice Tract

TO SAY nothing of patriotic considerations, the high price of rice has stimulated the planting of that crop to an unparalleled degree in all parts of California where the little white kernel can be raised to advantage.

The Colusa county rice growers are to the front with a big acreage, which some estimate to be 30 per cent more than last year.

Yolo county now looms up as a great rice region. Over 12,000 acres of land in that county have been made available for rice culture this season through negotiations successfully concluded between the United States food administration for California and Lake and Yolo counties, which have agreed to permit the use of water from Clear Lake for the irrigation of the rice lands.

The land will be planted and harvested by individuals, and according to food administration officials the coming crop will amount to between 400,000 and 500,000 sacks of rice. To complete the irrigation system of this big territory it will be necessary to reduce the waters of the lake three feet below the former level, or three feet below the zero point on the Rumsey gauge. Patriotic co-operation of the people and interests of the Lake county were the consideration which made the project feasible.

The food administration will exercise direct control over the entire operations, including supervision of accounts and distribution of water, and will protect the interests of those involved. After the harvest the net profits derived from the sale of the water will be distributed equitably between the distributing company—the Yolo Water and Power Company—by the board of supervisors of Lake county, according to the terms of the agreement, which were concurred in by the board of supervisors of Lake county and the trustees of the town of Lakeport.

This is the first time in the State that a project of such magnitude involving similar difficulties has been carried to fruition and success in the case was attributed to the recognition on the part of those affected that the national welfare demanded food production from every available acre which could be placed under cultivation.

Going Without Wheat

GOING without wheat is an inconvenience — nothing worse— for homes in comfortable circumstances.

It is no hardship—no danger. Physiologists all agree that a wholesome diet need not include wheat. The South fought the Civil War three years on corn. Early New England did without wheat five years at a time with no ill effects.

Going without wheat is perhaps more expense, certainly more work. Not a hardship but a burden. Who shall bear the burden?

Shall we ask the women of France to do it? Do you know what it means to them?

The women of France are doing their own work, doing the nation's work, even doing the work of teams in the field.

The men are gone—all but the younger boys, the aged and the invalids. In almost every home is a cripple or one dying of tuberculosis—an added care.

French homes have not baked bread for hundreds of years. They have not even ovens nor baking tins in their kitchens. They rely on the bakery.

If you ask them to bake their own bread—for the bakery cannot supply quick breads—the women of France must add another hour to their long day of toil.

Will you ask them to do that? Or shall our homes carry the extra burden of doing without wheat?

—See what Bean TrackPULL Tractor Does

Down Between the Rows and Around the Trees!

Note the practical turning feature of this remarkable tractor. Watch it *pull the tools* around turns just as easily as on the straight-away. See it go all around a tree, with the tools *sunk down deep* doing *valuable work*, plowing or cultivating right up to the trunk. Look at the circular diagram above. Do you know another tractor that will do that? Many tractors will *turn themselves* around all right but the tractor you need whether in *orchard, vineyard* or FIELD WORK must take *the tools* around too and keep them *at work* all the way around. This requires *full power* on the turns. A pivot-turn with *half* power isn't sufficient; and a pivot-turn with one wheel or track stationary and *full power thrown on one side* of the tractor is a *straining overload*.

That's where the great PATENTED SINGLE-TRACK FRONT-DRIVE principle of the *Bean TrackPULL Tractor* gets its immense value. It permits full power even when *turning inside a 10-foot circle* (5-foot radius). No pivoting, and no overload on *any part*. No other tractor *can be built* like the Bean, because basic patents protect it from imitation.

Don't buy a tractor that doesn't turn with full power. Your work calls for many turns and a tractor that will make them right will save you time and money.

Send right now for the Bean catalog with full details, learn the price of this remarkable tractor, and the name of the nearest agent who will give you a true demonstration of the TrackPULL doing the kind of work you have been waiting for it *on your place*. Mail us this coupon now, before you forget it.

Bean TrackPULL Tractor (Patented Front-Drive)

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Please send Tractor Book with full information about the Bean TrackPULL Tractor.
Name ....
Street ....
City ....
County .... State ....
No. of Acres .... Kind of crops grown ....

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Also ideal grade and high school. Large faculty of specialists, swimming, gymnasium, etc. Send for free catalogs and name course in which you are interested. Address W. H. McCAULEY, registrar, 715 S. Hope st., Los Angeles, Cal.
SUMMER TERM OPENS JUNE 24.
Mention Orchard and Farm when writing.

Did You Ever Keep a Record of Your Cows?

If so, you have no doubt felt the need of a convenient, simple and handy record sheet. Thousands of dairymen throughout the United States are today using record sheets. We have a record sheet that will fill your every want.
If you have never kept a record now is the time to begin. You can never be as successful a dairyman without dairy records of your cows as with them. Send for enough to run a year—one a month—and you will never again do without them.

Daily Milk Record Sheet for Ten Cows, Size 10 ins. by 17½ ins.

6 Sheets for $ .25, Postpaid
15 Sheets for $ .50, Postpaid
25 Sheets for $ .75, Postpaid
50 Sheets for $1.25, Postpaid
100 Sheets for $2.00, Postpaid

If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.
Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

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A Motor for Every Need

Just a glance at these illustrations will show you a few adaptations of

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to various farming operations.

Whatever the service required, G-E motors will give efficient and profitable results.

Wherever the machinery is situated, the wires will reach it—after that only "throw on the switch" and the power is instantly available.

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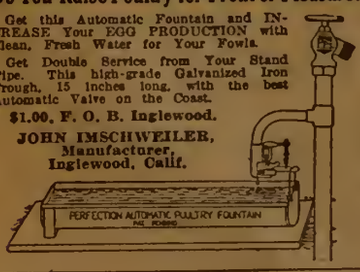

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How can you expect a hen to lay 150 eggs a year or even 50 eggs if her vitality is sapped by lice and mites—all she can do is itch and fret and cost you money.

DEVIL'S DUST

A Sure Killer of Vermin—
safe and economical to use

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Lose Fifteen Cents a Hen

Plaint of Our Poultrymen to Hoover

THE other day a man in Indianapolis wrote to the editor of Orchard and Farm and asked for advice. He wanted to come to California and go into the poultry business as a producer. He asked for a frank statement from the editor as to whether such a course would be advisable. The editor's reply was certainly frank enough. He told the Indiana man that to come here and engage in the poultry game at present would be anything but advisable, as most commercial poultrymen were losing money.

This is an absolute fact and one that must be seriously considered by the Food Administration which could and should come to the rescue of the California poultrymen.

Recently F. D. Cornell of Los Angeles made a report to the Poultry Producers of Southern California, Inc., setting forth the results of his investigations into the business of the poultrymen of the southland. The kernel of Mr. Cornell's report lies in his statement that the poultry ranchers in the southern part of this State for the years 1915, 1916 and 1917 were confronted with an average annual "loss of 15 cents per hen for the three years." This state of affairs is characterized by the report as "a most deplorable condition," which it certainly is.

In commenting upon the Cornell report S. S. Knight, chairman of the poultry committee of the Petaluma Chamber of Commerce, urges that the Southern California poultrymen join with those of Petaluma in an effort to get their case before the United State Food Administration in the hope of receiving reasonable and intelligent consideration of the difficulties under which the industry is attempting to operate.

Mr. Knight says: "Californ poultrymen are responding most no to Mr. Hoover's appeal as voiced him at the Chicago convention fall and they are entitled to and receive, upon proper presentation their case before him, the consid tion which they so justly deserve

"The prejudice of those in auth ity in the Food Administration Washington, against the commerc poultryman and in favor of the poultr farmer must disappear when t facts are presented showing t economic reason not only why t commercial poultryman prospered the pre-war period but that he abo all others is the one to whom government must look for the qu est and greatest augmentation to o poultry and egg supply during t period of this war.

"It is probable that of the tot poultry and eggs supply of o country, the commercial poultryme produces slightly over 10 per cen Sixty per cent of this producti probably comes from the State California. Of this amount, the cou ty of Sonoma probably produces ab one-half.

Mr. Cornell's reports cover a pr ducing condition similar to our o and establishes beyond a doubt t fact that unless our local indu which has been and is the pride Petaluma and the cause of her pro perity, is not to suffer irreparable lo it must demand and obtain the c sideration which is its due from t youngest but perhaps the most powe ful branch of our government—t Food Administration at Washingto

How Henry Ford Is Helping Uncle Sam

HENRY FORD, impressed by the imperative necessity of speeding up the agricultural production of the farmers of the country, and realizing that increase to be appreciable must come from the average farms, has developed into the tractor a two-plow machine which is within the economic reach of the average farmer. Furthermore, he has brought to its production his genius for factory organization and standardization, until today, just at the biginning of his career as a tractor builder, his daily output of completed tractors is greater than the monthly output of many a concern which already has won name and fame in the tractor industry.

In addition, the daily output is to be increased so rapidly that the average farmer everywhere speedily will be able to take his place in the ranks of the power farmers.

As far as this country is concerned the first big application of the Ford idea of tractor utilization comes in Michigan. In pursuance of his desire to be of signal service in increasing the agricultural production of his home State, Mr. Ford went to the War Preparedness Board of Michigan, of which Governor Sleeper is ex-officio chairman, and of which Major Van der Cook is acting head, and proposed that the State buy 1000 tractors for delivery during April for immediate distribution among the farmers of the State so that they might be employed for spring tillage. Mr. Ford agreed to produce and ship the tractors and to look to the War Preparedness Board for payment.

The idea appealed to Governor Sleeper and Major Van der Cook, and, relying upon the patriotic co-oper tion of the farmers of the State, t roposition was accepted and M Ford was told to go ahead with t production.

Through the War Preparedne Board announcement was made the farmers of the State of what h been done and what was conte plated. Immediately the applicatio for tractors began pouring in fr the farmers and within a few days t receipt of more than 500 such appli tions had justified the confidence the Governor in the success of t plan.

At once the War Prepared Board began working out the det of the distribution. First it was de cided to work through county agr cultural agents wherever there w such an official, otherwise thr the chairman of the county war pr paredness board.

The orders to Ohio and Iowa, t are being rapidly filled

Imperial Steers Go East

FORTY carloads, or an ent trainload of Imperial valley steers started for Kansas C from the Imperial Valley on M 6 to give their owners the ben the difference between the price p in the big middle western market a in Los Angeles.

C. H. and O. B. Fuller and A McBride are the shippers of the b cattle and according to I. T. Sp commercial agent of the Souther cific company, this is only the several trainloads of fat livestock go to the Kansas City yards for keting

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All materials specified are of the very best grades obtainable in their respective kinds. Each piece is inspected before it is sent to the cutting room, and experienced men handle the cutting and the loading, so it is really inspected three times before shipping.
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A Tractor Courtship

By Vernon Records

FARMER GOODNEIGHBOR paid Bill Rickey the wages due him, and added for good measure the following uncomplimentary remarks:

"I can't employ you any longer, Bill. I have no use for a man with a cigarette stuck in the northwest section of his mouth. You are always looking for a job of cutting ice in the summer time and making hay in the winter."

"That being the case, I'll quit smoking," Bill snapped. "I'll go over to Zoe Tucker's 1000-acre farm—and win a home."

"That's the talk, Bill. Zoe is the best cook in Snowshoe County. I heard last night she needed a mechanic."

When Bill Rickey arrived at the Tucker farm, a pink sunbonnet bobbing around a farm tractor caught his eye. Zoe Tucker was unable to secure a mechanic to operate the machine, so she was trying to tinker it herself.

He walked over the plowed ground to where Zoe was working.

"Good-morning," said he. "What appears to be the main difficulty?"

"I don't know," she confessed. "It was in perfect order when it arrived. Several of my hired men have tried to operate it. Something went wrong. They tried to fix it—"

"That's the trouble," Bill interrupted, "it is fixed. What it needs now is repairing. I'm a mechanic. You go and prepare dinner. I'm hungry enough to eat the word 'welcome' off a doormat. And I will tinker this critter."

"But you don't ask what wages I pay," she said.

"I don't care!" he replied.

He examined the tractor's engine with a trained eye, and turned the engine over. It snorted and ran like a sick rooster.

"That's just the way it acts," Zoe explained.

"Please hurry up those cats," Bill begged, "before I starve to death on your farm!"

"You certainly have a queer way of speaking," Zoe said, half angrily, as she started in the direction of the house.

"Has the new mechanic arrived?" Mrs. Tucker inquired a few moments later.

"He has," Zoe answered

"What's his name?"

"I don't know."

"What wages does he expect?"

"He doesn't care!"

"Where did he come from?" was the next question.

"He didn't say," Zoe confessed.

"There is something radically wrong here, Zoe. Probably he escaped from a lunatic asylum."

"Probably he did, mother," said Zoe as she lighted the blue-flame oil stove.

"I'll keep my eye on him, anyway," Mrs. Tucker warned.

Zoe made no comment.

Bill soon located the trouble. The magneto was sick. He secured a screw driver and went to work on the magneto. The set-screw he adjusted so that the platinum points were just far enough apart. Then he tightened the lock-nut and tried to get a spark. He got it.

"Now, old-timer, show how nice you can perform," he said to the tractor as he mounted the seat. The engine purred like a contented kitten. He seized the steering wheel and shifted the gears from neutral to low. The drive wheels bit into the wheat stubble and moved ahead. Sixteen furrows turned over on their backs and smiled at the sun.

The dinner bell rang. Bill didn't hear it. He had forgotten all about eating. He stopped the engine. The third section of the train of gang-plows didn't turn the furrow to suit him. He shortened up one of the guide rods. This finished, the ground was turned over smoothly.

Zoe rang the bell again.

"Gee!" Bill muttered, "I forgot about that dinner. The best cook in Snowshoe County! Huh! I hope she is. I wonder if she ever contemplated matrimony?"

He walked to the house. Stopping at the woodpile near the barn, he gathered an armful of firewood. Mrs. Tucker was surprised to see Bill enter the kitchen and place the wood in the box behind the cook stove. He then secured a basin and proceeded to wash off the real estate.

"Dinner is ready, Mr.—Mr.—why, you never told me your name!" she stammered.

"It's William Rickey, from now on, Miss Tucker," he said.

Bill made the dirt fly all afternoon. About 7 o'clock he stopped work and went to the house. He wasn't thinking about farm tractors just at that moment. He extracted from his suitcase a silk shirt, blue serge trousers, tan oxfords and—last but not least—a silk necktie. With his safety razor he mowed the alfalfa off his smiling face. This accomplished, he donned his new clothes and proceeded to doll up. He was whistling merrily.

"That new man certainly has a good disposition," Mrs. Tucker confided to Zoe.

Supper was served.

After supper Bill took a stroll. He wanted to be alone, and think. When he returned Mrs. Tucker had retired. Zoe was sitting on a bench under an apple tree watching the moon. Strange to relate, Bill's number seven oxfords started in that direction—of course Bill went with them. His heart thumped in an unaccountable manner. She certainly was the prettiest girl he had ever seen in his life!

Zoe smiled at him. Bill sat down on the bench. Dan Cupid tried to sit between them, but finding there was no room he gave it up.

* * *

Oh, well, you can guess the rest of the story! Bill did not win a home and a wife in one day—nor in two or twenty. But he manfully lived up to his new resolves, worked hard, and in time won the confidence and esteem of Zoe and Mrs. Tucker. The rest was easy.—Farm Journal.

Tehachapi Raising Good Pears

TEHACHAPI, in Kern county, Cal., is coming into its own as a high-class pear producing district. During the past seven or eight years, much development along this line has quietly taken place, and the growers, who had faith in the mountain country, feel much elated over the success of their initial shipments.

These first shipments consisted of twelve carloads to eastern points and three to local centers—Los Angeles and San Francisco. The first car to the east brought $3.50 per box, the second $3.65. B. M. Dennison of Tehachapi is very proud of this second car, as it was deemed of sufficiently high quality to warrant re-shipment to South America.

Tehachapi is situated in the southeastern part of Kern county in a valley of like name. The valley contains from 10,000 to 15,000 acres of good, level pear land, of which 5000 acres are planted to pears and apples. It is a common practice to grow currants between the pear rows when the trees are young, and from this hush fruit sufficient profit is often derived to carry the expense of developing the pear orchard.

The valley of Tehachapi lies at an altitude of 3900 feet, is well watered, and the climate is ideal for apples and pears. Irrigation is had from wells by means of gasoline engine and pump. The soil is very deep, drains well and is fertile.

The Tehachapi country is now in the making, and is famous for its Bartlett pears and red apples.

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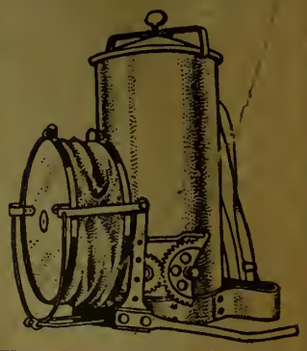

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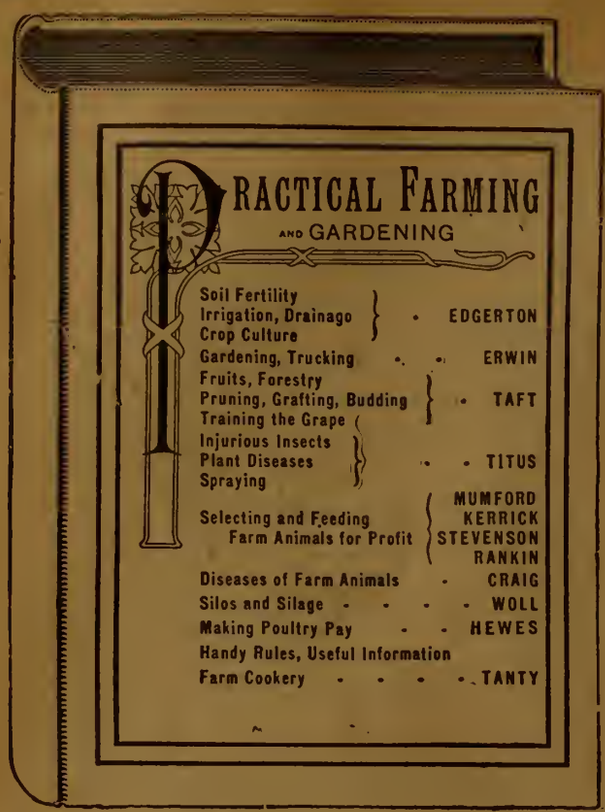

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My System in Beekeeping

What Experiment and Experience Have Taught Me.

By C. D. Stuart.

In this new series of articles Mr. Stuart, who is a well-known agriculturist of Los Gatos, Cal., will tell of his experience as a beekeeper and will also give the readers of Orchard and Farm some valuable hints of the care of bees and cost of keeping them.

EVERY business venture is subject to divers expenditures that are neither flesh, fowl nor good red herring. Translated to bee language, such expenditures, although of blood kin, are not bees nor hives nor other bee equipment. But since they are necessary for continuing the enterprise, these odds and ends are rounded up under one heading known as general expense, or operating costs.

After equipment is provided, then the expense of making that equipment earn a profit is operating cost. Freight, drayage, postage, rent, gas, water, salaries (where the service performed cannot be classed as labor that goes directly into bee equipment), and upkeep of tools and machinery, are operating costs. In enterprises of vast scope, they are classified under various conventional headings; but in the early stages of establishing a small apiary, one general account is sufficient.

The operating cost of an apiary will vary with the wisdom or cupidity of the apiarist, and is much more troublesome to estimate than the cost of bee equipment, which is more or less standardized. But even the very young appreciate the necessity of a firm hand in dealing with operating costs if there is to be a credit to profit and loss when the honey is harvested.

How to Reduce Operating Cost

The best way to keep operating cost down is, first, to know just what it is. The man who charges freight and drayage on hives to bee equipment in place of expense, will never know what is the operating cost of getting bee equipment into his apiary. On the other hand, the apiarist who separates operating cost from the cost of apiary equipment is constantly on the alert to lessen expenses. He will choose his apiary site with more care; it will be more accessible to the railroad, in order to cut drayage bills; and, as his business increases, he will figure whether or not it would be cheaper to buy a Ford and do the draying himself. And if he knows what drayage and freight charges amount to in the course of a year, he will ask himself if the upkeep of a machine would be more or less than the money formerly paid out for hauling.

Fly Traps Are Assets

Then there are the items of interest on money invested in the machine, the value of the time required to man it, depreciation for wear and tear, and fuel—all operating costs. The cost of the machine itself would be a part of apiary equipment cost. In just the same way the meat and fish used as bait for exterminating yellow-jackets that annoy our bees, is an operating cost, while the fly-traps in which the bait is used, although rusty and bent, are still on hand for next season's yellow-jackets, and are therefore a part of equipment cost. In accounting language, the traps are assets, while the bait illustrates the intangible nature of expenditures for operating costs in general.

The operating cost of establishing our own apiary is divided in two parts: a general expense account, including rent of apiary site, freight, drayage, repairs on tools, advertising, a ledger card system for keeping our records including tab on the colonies, feed for bees, and bait for traps, which totaled for the year $33.45; the other operating cost is for traveling expenses

There is great diversity of opinion among apiarists as to the value of visiting other bee yards, or the propriety of considering the expense incurred, as an operating cost. It is all very well for an experienced beekeeper to say that he always comes back from such trips possessed of a desire to kick himself for having spent money to learn methods not half so good as his own; but to one just starting in the business and who has not yet acquired methods either good or bad, the visiting of many apiaries affords an unparalleled opportunity for the comparative study of methods that eventually will assist in the choice of his own.

Visits to Other Bee Yards

Present day traveling is neither difficult nor expensive. Less than $100 spent on railroads and jitneys brought 28 apiaries, situated in 14 towns and eight counties, to our very doors. The cost was materially reduced by adopting the tramp plan of swapping labor for hospitality en route, thus gaining practical experience of considerable value in such branches of apiculture as queen-rearing, re-queening, transferring colonies, feeding, wax-rendering, preparing supers for the honey flow, extracting and even the repairing of equipment.

Among the 28 apiaries visited, seven were queen-breeding plants, eight were run for extracted honey, one for comb honey—the others for both extracted and comb honey. The 28 apiaries contained an aggregate of 6895 colonies—the largest, 2000, and the smallest, one swarm that we helped a neighbor hive from the top of a prune tree.

The majority of the colonies were hived in standard, factory-made hives both eight and ten-frame, and even the home-made hives were provided with standard movable frames.

About Bee Diseases

Being conversant with the ravages of hog cholera and the more virulent of chicken diseases, also the ailments of horses and cows, I naturally feared bee diseases, and made it a point to interview each apiarist on that menace. None of the commercial apiarists I visited claimed to be entirely free from bee diseases—with a single exception to prove the rule—and the cause and prevention of such diseases were topics of keen interest among them.

To a man who has been trained for no vocation, and who must acquire specialized knowledge quickly, a short time spent in tapping the fountain head of such knowledge is invaluable. And the cost of gaining that knowledge is an operating cost, because it will help him to operate his own apiary more intelligently and more profitably.

Our operating cost for traveling amounted to $82.86, and the distance covered was 1594 miles. The total cash dug up for operating expenses in establishing our own apiary was $116.31. In addition, there was labor capital for 177½ hours of our own time at 30 cents an hour, which we were unable otherwise to classify, amounting to $53.25, which, added to the foregoing cash items, amounts to $169.56.

But even that total is not all of operating cost. The $457.45 representing equipment cost of our apiary is subject to an annual depreciation to cover wear and tear for the purpose of replacing such equipment when it is worn out

(Continued on Next Page)

A Dust-Proof Tractor

THE conditions under which the tractor has to work are different from those of the other automotive machines, as the tractor when working is under a constant load that is very near its maximum power output, and probably the majority of days that it is in the field, the soil is dry and the atmosphere is saturated with dust. This fine dust is very injurious to machinery, and some provisions must be made in the design to protect both the engine and the other working parts from the effects of it.

To prevent the dust entering the engine through the carburetor, the air is strained or washed to remove any free particles that may be in it. This is also true of the breather pipes which lead to the engine crankcase, as it is important that the engine lubricating oil be kept clean to prevent damage to the bearings.

Due to the deteriorating effects of the dust all the parts, such as the clutch, gearset, final drive, wheel bearings, etc., are usually inclosed as is the practice in motor car engineering.

Tractors constructed on this basis are easier cared for and have a longer life. On account of the heavy work that the tractor has to do the design of the prime mover and the principle units which make up the machine are perforce larger and stronger than those of the motor car or truck.

Buying a Gas Engine

THE farmer who is about to buy a gasoline engine does not always know exactly what he wants. He necessarily needs a little education along the lines of the kind of an engine to buy—its size and the use to which it is to be put. It may be that the farmer has a number of catalogs from reliable gasoline engine manufacturers. He has probably looked them over carefully, but yet it is not just clear to him how to select his engine.

The buyer should have some ideas of his own and should select his engine according to requirements and conditions. He should not correspond with unreliable firms or with those companies that put out cheap engines without a guarantee.

The gasoline engine should not be a complicated machine, but one of simple design, so constructed as to be easily adjusted, and kept in repair.

System With Bees

(Continued from previous page)

If apiary equipment lasts ten years, the annual deduction for wear and tear would be one-tenth of $457.45, or about $45, an average of one dollar for each of our 45 colonies, to be added to the above expense total of $169.56. Thus, if as experienced apiarists agree, $10 a colony is an average return on a 100-pound yield in honey, the operating cost per colony for depreciation alone would be one cent a pound. Yet well-known apiarists claim to have produced honey at a cost of fractions to two cents a pound.

However, since the income tax has become operative, it behooves all concerned to know what are operating costs in order that they may be allowed to their expenses, as provided in the amendment on the Federal Income Tax return sheet.

[illegible] the operating of operations [illegible] most important part [illegible] for it is [illegible] whether a [illegible] surely [illegible]

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Here's what one man and a Moline-Universal Tractor can do in one day of 10 hours:

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Load 12 acres of hay.

In addition, it can be used on the belt for running threshers up to 24 inch capacity, silo fillers, corn shellers, feed grinders, wood saws, clover hullers, hay presses, pumps, lighting plants, etc.

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BECAUSE of its ideal design, construction and performance, this new Moline-Universal Model D enables one man to farm more land and produce more food than ever before possible. It is the world's most dependable farm hand and solves the farm help problem.

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New features include self-starter, electric lights, electrical governor, perfected overhead valve, four-cylinder engine that is free from vibration; complete enclosure of all moving parts; differential lock which increases traction in soft ground.

Every part is designed on the basis of quality and service. Drop forgings, heat-treated parts, steel cut gears and unusually large bearings add extra years of endurance.

These new features, together with the well known Moline-Universal type—all the weight on two wheels, one-man control and ability to do all farm work including cultivating—make the Moline-Universal Model D the best tractor that money can buy.

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Of its total weight of 3380 lbs., 98% is used for traction. That's why the Moline-Universal has phenomenal pulling power.

Conservatively rated at 9-18 horse-power, the Moline-Universal Tractor has more than ample power for heavy belt work. Its greater speed enables it to plow as much in a day with two plow bottoms as the ordinary three-plow tractor. Yet it is light enough for such work as cultivating, mowing, etc., which do not require as much power.

One Man Operates Entire Outfit

The Moline-Universal attaches direct to the implement, forming one compact unit. It turns in a 16-foot circle and backs with the implement attached as readily as it goes forward. One man has complete control of the entire outfit from the seat of the implement and can thus do the same work that requires two men with other tractors. Operation of the Moline-Universal is so easy that a woman or boy can handle it.

In fact anyone who can drive an automobile can run a Moline-Universal Tractor.

Moline Tractor Implements

The greatest care has been used in designing a full line of implements for use with the Moline-Universal. "Moline" trademark on a tractor or implement is a guarantee of dependable service.

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If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.

Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

Address Orchard and Farm, Examiner Building, Los Angeles, California.

For the Farm Woman

Edited by Ruth Roberts

FRIENDS: Are you a starch-eater, a vegetable hater or bitten by the calorie idea? Let me have a word with you.

The government restricts wheat for obvious reasons and thereby many persons who existed previously, in a poor way, upon refined flour and starches are being forced to become acquainted with other cereals and in this manner saving themselves many a penny for a saving stamp or toward a Liberty Bond, which might otherwise have been invested in a bottle of medicine.

We were growing farther away every day from the idea of eating any sort of bread or pastry except that made of the whitest of wheat flour. Let us hope that the many new ways of using the different cereals, oatmeal, rice, rye, whole wheat, graham, etc., which have been introduced will prevent us from ever again desiring an entire diet of very refined wheat.

Then we must, if we are Americans, and we either are or are not, substitute fresh fruits and vegetables in season for beef, mutton, pork and canned goods.

While I realize that the farmer's wife cannot choose from the variety in the markets as the city housekeeper does, still I believe that there is room for improvement the year around in the meals put upon the farm table.

Are there some of my readers feeling very virtuous upon reading thus far because they have a list of foods and their value in calories, by which they regulate the family diet?

It is wise to ponder awhile before going any further with this idea. I really think it is time to take down these lists from over the kitchen table and spend our valuable time and energy in other directions.

A calorie is merely a term for measuring heat, and because a food has a high calorie value is no reason to believe that it will either benefit or agree with you.

Alfred W. McCann has written a splendid article on this subject. He tells us that some of the most deficient and worthless of foods possess the highest calorie value, and that the food to be burned in the body in the production of calories is dependent upon the condition of the body to do the burning.

Calories cannot put iron into the red coloring matter of the blood, neutralize the acidity of the tissues nor act as a substitute for sodium, magnesium or sulphur in the body.

Mr. McCann, speaking of the scientists who have promoted the calorie theory, says: "Thus they ignore the growth-promoting substances of food which have no calorie value and those other substances of food which, absolutely worthless from the calorie standpoint, are nevertheless indispensable to the regulation of the specific gravity of the blood, to the regulation of the chemical reaction of all the internal secretions, to the preservation of the tissues from disorganization and decomposition, to the composition of the solid structure of the body, to the ability of the blood to hold certain materials in solution."

Can you not see how one may be misled as to a life-giving diet when figuring meals in terms of calories?

A banana contains 100 calories, a heaping teaspoonful of peas but 40 calories, and yet of the two the peas would be the better food to choose for a child and for all persons, old and young, in my estimation. A banana must be in a certain stage of ripeness to be a healthful food at all, and this special degree of ripening banana is seldom found in our markets.

Gelatin (a heaping tablespoonful) contains 160 calories, a cupful of vegetable soup about 20 calories, and yet one could not substitute gelatine for the soup in a diet and expect the same good results.

A heaping tablespoonful of ice-cream contains 135 calories, but if you are sensible you won't trade it in your daily diet for an apple at the value of only 75 calories.

So plan your reduction menus, but not by calorie values alone. A little meat, plenty of fish, fresh vegetables, fresh fruits, stewed fruits, pastry of oatmeal or rice flour and cereals form a wholesome variety in accord with the government plan of food saving.

An animal fed upon foods of high calorie value, such as corn-starch, macaroni, polished rice, tapioca and corn syrup would die. Add the juices of vegetables of no calorie value, and it will live. Add to that the unrefined foods, including the parts of grain rejected in milling patent flour or substances found in celery tops, lettuce, spinach, etc., and the animal will thrive.

To again quote Mr. McCann: "A speedometer, however perfect in its ability to register the number of miles traveled, will get a chauffeur nowhere unless the speedometer is accompanied by an automobile."

RUTH ROBERTS.

O what so rare as a day in June!
Then, if ever come perfect days.
—Lowell.

Your Left-Overs

COVER the bottom of a small greased baking dish with hot mashed potatoes, add a thick layer of pieces of roast beef (that are not suitable for slicing either hot or cold). Chop or cut them in small pieces, season well with salt, pepper and a little onion juice, and moisten with some of the gravy left over from the hot roast, and cover with a thin layer of mashed potatoes. Bake in a hot oven until well heated and top is a good brown.

Rice and Carrots

Reheat left-over boiled rice in a double boiler and arrange on a platter in a mound. Surround with carrots that have been cooked until tender and seasoned with a little butter, pepper and salt. Serve as a vegetable course.

Cakes for Summer

CAKE should have its seasons as well as sausage and buckwheats or turkey and cranberry sauce. The heavy spicy delicacies of the cold weather, the rich cruller, suet puddings, and other good things should be relegated to the winter, when pungent, rich and spicy viands are acceptable to the palate and agreeable to the digestive organs. But in summer, when the sun is shining so in the heavens, when the air is heavy with the perfume of roses, and milady dispenses hospitality garbed in diaphanous frocks, cakes should partake of the joyousness and lightness of the season and match as well as they can the ethereal quality of the hostess' gown.

Ransack your recipe book Summer Lady, and make a collection of the cakes that seem most appropriate to the summer season, and if you feel puzzled to decide just which of the hundred and one that are offered will be best suited to your purpose, let me help you.

Here is a delicious cake that will literally melt in your mouth. And a more fitting sweet for a summertime tea-party would be hard to find. It is called Peach Meringue Cake although it may also be made of raspberries or strawberries. Beat the whites of five eggs to a foam, then add half a teaspoonful of cream of tartar and beat till stiff and dry. Add very gradually three-fourths of a cupful of granulated sugar and one-fourth of a teaspoonful of almond extract. Now fold in half a cupful of pastry flour sifted three times and spread lightly in two shallow layer cake pans that have been greased and lined with paper. Bake twenty minutes in a moderate oven. Put together with meringue filling made with the desired fruit.—Katherine Champion.

Moist Cheese

To keep cheese moist and to prevent it from drying out, simply wring out a cloth in vinegar and wrap around the cheese.

Cottage Cheese Salad

Form in balls or cut in dices, sprinkle with chopped nuts and serve on lettuce leaves with dressing.

Theory and Practice

YOUNG WILLIE'S mother spoke today
Before the Woman's Club and said
That punshment was always wrong
For children should be gently led.
Her argument was clear and strong—
None dared her statements to gainsay.

She took examples from old Rome
Traced Caesar's greatness in his nurse—
I think a whipping now and then
Would not have made him any worse.
She pointed out a score of men
Whose march to power began at home.
Napoleon, Gladstone, Washington
And Roosevelt—she named them all.
Were gently shown the way to run
And never cuffed when they were small.
Let every mother do the same—
Try moral suasion on her son!

She finished amid cheering loud
And homeward went with keen delight
To fondle Willie—little pet!
The sight she saw astonished her quite
He'd cut to bits her new cigarette!
Alas! She spanked her angel mite.

Women in Orchard

(Continued from Page 5)

mount? Are they on the pile-driver order which only a strong man lift?

I suggest a short four-foot broad ladder for lower branches and short-bed women. Boys can pick the highest fruit. Another suggestion, for possibly women may have to pick the fruit for some years to come. Start your trees lower, prune to lower branches. Work the ground down smooth. Tripping over uneven cloddy ground is annoying.

Laborers should refuse to gather prunes on rough ground.

Have the camp grounds level, water piped with a number of faucets, and several toilets.

Baths and sanitary conveniences are required by the State Immigration and Housing Commission.

Pay decent wages. Do not herd your help like cattle. Have camps for women and girls as private as possible. Furnish picking bags which hang from the shoulder.

Women, Consider Your Employer

"A word to the helpers: Do not consider that everything on the ranch belongs to you. The farmer may have a family orchard of assorted fruits for his own use. These are not yours or your children's. His hens may lay in a corner near your camp, the eggs are the farmers. Neither are the berries or vegetables in the garden

Consider his property—the picking bags, boxes and ladders.

Use care in picking the fruit. The small branch or spur on which the fruit grows bears fruit next year, and if broken no branch for fruit grows there again.

"Pick ripe cherries with the end of the first finger and thumb nail. If in a cluster of six, two are ripe at opposite sides. Pick each ripe cherry without disturbing the unripe. If all are loosened, they wither and do not mature.

"Ripe apricots and peaches can be gathered without a mark on the soft flesh by taking the fruit in all fingers. A side twist loosens it from the branch. Never pinch the fruit.

"Berries for Eastern shipment are packed in crates carried in a light four leg carrier. This crate rests on the ground.

"When a soft pick spreads over the green the berry will reach the Eastern market in prime condition. The local and cannery berries must be a fresh red.

"Prunes are picked from the ground where they fall when ripe.

"Cutting fruit has been women's work. You may prefer it to picking. Cut the fruit completely around. Make as few motions as possible to complete the task.

Fruit Handlers' Wages

Different localities pay different wages. Last year early cherry pickers received $1.60 per day, but as the crop was mostly transient, the crop was harvested without any advanced wages, but this was the lowest paid skilled work.

In some sections cherry pickers are paid by the pound, where the fruit is uniform ripeness, but for shipping and packing it cannot be done.

Packing is paid by the box, and berries by the crate. Cutting, picking prunes, packing grapes and pears are paid by the box. Apricots, oranges pears and apples by

Wages this year will be higher but make yourself worth the hire.

on every farm on the There's no money in selling and buying canned at retail

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His principles of spring tillage are alone worth many times full price of the book, as evidenced by more than thirty illustrations of big results.

His new principles in growing feed for hogs and cattle have been proved correct by dozens of farmers each year, wet or dry, for the past four years, especially in 1916. This information alone is worth hundreds of dollars to the new settler as well as to the man who is just getting started in the stock business.

He shows you how trees and small fruit can be grown in dryer sections. In short, it is a guide book that keeps you progressing and steers you clear of the disappointments. If by following the instructions of this book in years that are droughty, several men can raise twenty bushels of wheat to the acre more than their neighbors, others raise thirty bushels of corn more than their neighbors and others six tons of cane or hay per acre when their neighbors do not get a half ton, why can't you do it?

Thousands of our readers will want this invaluable book and quick action is necessary, as the supply is limited.

Remember, 75 cents pays for the book, postpaid, and a year's subscription to Orchard and Farm. On renewals send the same amount.

Orchard and Farm,
Examiner Building,
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Enclosed find 75c, for which send Hardy W. Campbell's book, "Progressive Agriculture," postpaid, including one year's subscription to Orchard and Farm.

Name .....

Address .....

Pretty Costumes

Selected by Ruth Roberts.

These costumes are all carefully chosen with a view to their adaptability to the needs of the home dressmaker. None is elaborate or complex and all can easily be made from the patterns provided by this department. To get any of the patterns send ten cents in silver or stamps to Pattern Department, Orchard and Farm, Examiner Building, Los Angeles.

2473—Dress for Misses and Small Women.
Cut in 3 sizes: 16, 18 and 20 years. Size 18 will require 5¾ yards of 36-inch material. The skirt measures 2 yards at the foot. Price, 10 cents.

2455—Girls' Dress.
Cut in 4 sizes: 8, 10, 12 and 14 years. Size 12 requires 2½ yards of 27-inch material for the blouse, and 2¾ yards for the skirt. Price, 10 cents.

2479—Girls' Dress.
Cut in 5 sizes: 6, 8, 10, 12 and 14 years. Size 12 requires 3¾ yards of 44-inch material. Price, 10 cents.

2480—Ladies' Dress.
Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 6 yards of 36-inch material. The skirt measures a little more than 2 yards at the foot. Price, 10 cents.

2457—Ladies' Apron.
Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium requires 5½ yards of 36-inch material. Price, 10 cents.

2450—Sun Bonnets for Ladies and Girls.
Pattern including both styles is cut in one size—medium for ladies and girls. It requires for No. 1, 1½ yards; for No. 2, 1¾ yards of 32-inch material. Price, 10 cents.

2137—Girls' Dress.
Cut in 4 sizes: 4, 6, 8 and 10 years. It requires 3¾ yards of 36-inch material for an 8-year size. Price, 10 cents.

1710—Girls' Apron.
Cut in 5 sizes: 2, 4, 6, 8 and 10 years. It requires 2¼ yards of 36-inch material for a 6-year size. Price, 10 cents.

2104—A Charming Lounging Robe.
Cut in 4 sizes: Small, medium, large and extra large. Size medium requires 6¼ yards of 44-inch material. Price, 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date spring and summer 1917-1918 catalogue, containing 550 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker.

Use Coupon in Ordering Pattern

Herewith find.....cents for which send me the following patterns:

Pattern No.....Size.....

Pattern No.....Size.....

Pattern No.....Size.....

Be sure to give number and size. Send orders for patterns to ORCHARD AND FARM, "Examiner" Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below.

Help-Yourself Stores

A PATENTED type of self-serving retail grocery store, developed by a Memphis inventor, is said to be effecting important reductions in the cost of handling groceries in several States. The goods in packages are arranged on shelves, plainly priced, from which the customer helps herself, passing in at a turnstile and out past a cashier who ascertains the total amount of her purchases and collects for them. Special racks, bins, stands and cases are provided for different commodities, such as cured meats, whole hams, sugar, candy, mincemeat, pickles, fruit, bread, brooms and stationery. Each store is held to standard lines, so that a store in New York City will be like one of the same system in San Francisco. Nine of these stores are now in operation in Memphis and suburbs, and on one Saturday in October these nine stores sold more than $2000 worth of merchandise at an average store expense of 3.12 per cent, exclusive of the royalty charged on the patented fixtures, as against an asserted selling expense of 12 to 17 per cent for economically managed chain stores with clerks.

Are You Eating Cottage Cheese?

THE women cottage-cheese a[illegible] who are being sent by the United States Department of Agriculture into forty-seven States to demonstrate the home making and the uses of cottage cheese, gave a lesson recently at the Department of Agriculture to prove what could be done with this food product—approximately equal in food value to meat. They served cottage-cheese soup, cottage cheese sausages, cottage cheese salad, cottage-cheese tarts as well as whey honey, and whey pu[illegible]—all based on cottage-cheese. It looked like an ordinary banquet, but it wasn't. It provided enough sustenance to satisfy even the hu[illegible] appetite, and every dish had cottage cheese as a basis.

Save Orchard and Farm's Best Articles

ORCHARD AND FARM suggests that its readers who see some particularly interesting articles in its columns should clip them out and file them away.

Articles of intense interest relative to successful experiments in all lines of husbandry appear in this publication. For purposes of ready reference, some of our readers clip these articles out, and in the course of time have amassed under the various subdivisions a vast fund of information of the utmost value.

If they trust to memory, they forget the issue in which the article appeared and to find it have to search through many copies.

Although the fact is not very widely known, San Francisco has large gardening areas. The sandy soil is particularly well adapted to the raising of small vegetables. Potatoes thrive there wonderfully. Over in the lowlands at the foot of Bernal Heights there are fine vegetable truck gardens mainly operated by Orientals and Portuguese and Italians.

Enlist as a Farm Soldier!

Send Your Name and Address to This Office.

SEVEN hundred and fifty thousand new farm workers are needed in this country to increase the war emergency food supply.

Do you need work? Will you be willing to help in this grand movement by which our war crops will be cultivated and harvested?

What are you doing now?

Are you one of that class that is loafing about the poolrooms holding up the store fronts and patronizing the free lunch counters?

Let us hope that you are not. But if you are here is a way to redeem yourself and show that you are a man:

Enroll on the Orchard and Farm list of men who are willing to devote themselves to public service by work upon the farms.

Or it may be that you are of that over-industrious class who want to help win the war and don't exactly know how to do it. Orchard and Farm presents a way: Enroll as a farm worker.

Perhaps you wanted to enlist in the army or navy and were not accepted, but are able to do your day's work in orchard or field. Enroll!

Or it may be that you were formerly engaged in agriculture and are now willing to do something to help out crop production temporarily. Enroll!

Sign the following and send it to Orchard and Farm, Examiner Building, Los Angeles, immediately:

I wish to enlist in the army of farm laborers for the present war emergency. I shall expect wages at the rate of $.....a day during the period of my employment which will be ..... months.

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Dear Sir: Send your free book on the MATTHES SYSTEM, without obligating me in any way.
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No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

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Board, room and tuition may be earned. Splendid openings in the railroad business for ambitious women under 45. Send for free catalog.
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Cooling system. Foods keep exceedingly fresh in hottest weather; keeps cool by evaporation; made of cement, reinforced, made in sections; Shipped anywhere. Our steam temperature cement is as hard as iron; lasting as long in every way, not affected by other strong solutions, does not rust; perfect ventilation, no repairs; only refrigerator of its kind. Insist on it, demand through dealers

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Traveling With Babies

SOME time ago I was obliged to take a long trip on the train with my two babies, aged one and two. It was a good deal of an undertaking. The problem of feeding the baby proved simple. I bought two quart thermos bottles in a leather case with a convenient handle. In one I carried the milk, and in the other boiling water. And when the baby was ready for his bottle I had only to mix the milk with the water. But the problem of how to dispose of one child while busy with the other worried me until my mother thought of some cloth straps. She made them from narrow strips of cotton cloth, about three inches wide and four or five feet long. At each end she placed a very large, heavy safety-pin. These straps proved invaluable. Placing the baby in the car seat, I would pin each end of the strap to the back of the seat; thus the baby would be held securely and comfortably. He could reach his toys, too. When I took the children to the dining car, I placed the straps around them and passing it through the back of the chairs, tied them. In the sleeping car I always engaged two lower berths opposite each other. The porters obligingly gave me extra pillows, with which I built a nest for the baby, and taking one of those useful straps I passed it over his body and pinned it on each end to the berth. And there he slept safely and comfortably while his baby sister and I occupied the opposite berth. My relatives marveled that I could undertake such a long trip with the two babies. I freely confess that I should have had all sorts of difficulty without those cloth straps. They were made of several thicknesses of cloth and heavily stitched so as to make them strong, while they were at the same time pliable and comfortable for the babies—Mrs. O. C. E.

Eggs in Nests

COOK spaghetti in salted water until tender, keeping it in as long pieces as possible. When ready to serve, coil spaghetti on platter to form rings or nests, drop a poached egg in center of nest, and if desired, pour over all a tomato sauce.

The Government has recognized the importance of farm machinery by giving the raw materials from which it is made a rating of B-1, second only to munitions. Director-General McAdoo has given shipments of implements freight priority so that the farmer may not be delayed more than is absolutely necessary in receiving his new machinery. The farmer can do his part in this scheme by ordering early.

"The store where I do my trading"

THROUGHOUT the West—go where you may—big town, small town, crossroads store—there you will find Ghirardelli's.

This West-wide distribution has been made necessary *by demand*—a demand for a delicious, sustaining food-beverage; a demand that is met by Ghirardelli's, and by this alone.

Result? Today Ghirardelli's Ground Chocolate is in daily use in more homes in the West than all other brands combined.

As a beverage it is beneficial; as an aid in baking and cooking it is invaluable.

Be sure to ask for it —at "the store where you do your trading."

In ½ lb., 1 lb. and 3 lb. cans; a tablespoonful—one cent's worth—makes a cup.

D. GHIRARDELLI CO.
Since 1852 San Francisco

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

Seashore— PACIFIC ELECTRIC —Mountains

VACATION TIME

IS here again and many of us are planning to spend a goodly portion of that time at one of the numerous seaside resorts while others will prefer the mountains—

In either case the PACIFIC ELECTRIC RAILWAY offers unexcelled service to seaside resorts and direct connections to many mountain camps.

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SEAL BEACH
HUNTINGTON BEACH
NEWPORT BEACH
BALBOA

Mountain Resorts

MT. LOWE
CAMP BALDY
HOEGEE'S CAMP
GLENN RANCH
COLD BROOK CAMP
CAMP RINCON
FOLLOW'S CAMP
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and SAN BERNARDINO MOUNTAIN RESORTS.

—Ask for Special Folders—

Pacific Electric Railway

FARMERS' CLASSIFIED MARKET PLACE

Our rate for classified advertisements on the Market Place pages is 3 cents per word for each insertion. Advertisements must reach us before the 21st of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

REAL ESTATE

NEW OPENINGS—State land, well located, offered first time regardless present value—town lots, acreage, some improved. Your patriotic duty this year to buy State land, to be sold for taxes. Get the money in the treasury, the land on assessment roll, and crops growing on the land. Get bargains at one-tenth value. Because of drink, death, leaving country, etc., years ago this land went to the state. Because of War, Work and Worry, most person will pass these bargains to you. Put in your order now for new 1918 lists and particulars; any three counties, $5. Any man or woman can buy on payments without residence. New law makes all safe. You get mineral and oil rights. Get busy or get left. Joseph Clark, Sacramento.

FOR SALE—320 acres in Lake County, California; 175 acres are under cultivation; balance is in wood pasture; land is well watered by two springs; fine young orchard of Bartlett pears and assorted fruit; there are about four hundred trees in full bearing; fine corn, potato and melon ground; ordinary farm house and outhouses; two good wells and windmill. For particulars and further information, inquire of Mrs. A. E. Noel, Lower Lake Bulletin, Lower Lake, Lake Co., Cal. Terms cash or part mortgage.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Texas.

WANTED, TEN THOUSAND FARMERS—Arizona is calling you. Rich, level agricultural land, $5 to $25 acre. Abundance water, sulphur springs. San Simon Valley's bargain list and map free. Box 322 Wilcox, Ariz.

RELINQUISHMENT, 320 ACRES, Madeline Plains, Lassen County; all level, sandy loam, 2½ miles fence; 4 miles to station, on county road. Sale or trade. H. A. Peckman, 1730 Jackson street, San Francisco.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information address A. J. Smith, Groveland, Tuolumne County, California.

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BUY, SELL OR TRADE farms, city property and merchandise stocks. Give full particulars and tell me what you have and what you want. D. J. Forbes, 153½ Grand Ave., Portland, Ore.

315-ACRE FOOTHILL RANCH FOR SALE for the mortgage, $5,750; terms if desired. 2½ miles out from Murrieta, Riverside county, Cal. Write O. K. DEPARTMENT STORE, McKittrick, Cal.

TO REDUCE my holdings I will sell 20 or 40 acres, vineyard and orchard. Good house. Low price and good terms. J. P. Bolton, 632 Forthcamp avenue, Fresno, Cal. Phone 3102-J.

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WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

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NO PAYMENT DOWN.
FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS," AT ORLAND, CAL.; WATER FURNISHED BY UNCLE SAM; WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS; NO BETTER SOIL FOR ALFALFA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET, "ORLAND FARMS."
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ANY AMOUNT ON COUNTRY PROPERTY. Bank rates. Write for particulars. We specialize on large country loans.
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POWERINE is equal to gasoline at 5c a gallon; salesmen and agents wanted; exclusive territory granted; powerine is guaranteed to be harmless, to remove and prevent carbon, doubling the life of all gasoline motors, saving repairs, adding snap, speed and power; an amount equal to 20 gallons of gasoline will be sent to any address in the U. S., charges prepaid, for $1. W. Porter Barnes, Santa Rosa, Cal. Dept. 8N.

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Any size, any quantity. Write for prices.
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EVERYTHING FOR THE BUILDER—[All] kinds of second-hand building mat[erial], doors, windows, lumber, shingles, corr[ugated] iron, cement trays at the lowest p[rices] [illegible] list and get estimate, count[ry] or[ders] [illegible] carload lots a specialty. H. M[c]Kevitt [illegible] Wreckers, 1849 Mission street, n[ear] [illegible] San Francisco, Cal.

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Our rate for classified advertisements on the Market Place pages is 3 cents per word for each insertion. Advertisements must reach us before the 21st of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

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Winners at California's leading shows and wonderful layers. If it's Barred Rocks you want, get in touch with me right away. I have bred them exclusively for twenty years. Yes, we are booking orders for hatching eggs, which will start you right. Catalog free. Vodden's Rockery, Los Gatos, Cal.

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[illegible] are specialists in the production of high-[illegible]ade S. C. White Leghorn Baby Chicks. [illegible]roughbred heavy laying strains of Amer[illegible] choicest Leghorns fill our breeding pens [illegible] my personal attention is given to all de[illegible] assuring each customer of highest [illegible]ity stock. Our catalog is free. It fully [illegible]ribes the stock, eggs and chicks, con[illegible]ng photos showing the ideal conditions [illegible] methods used to make our Baby Chicks [illegible]h having. A postal mailed today will [illegible] it to you. The Vineburg Hatchery, [illegible] Rhode, Prop., Vineburg, Cal.

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[illegible] ARE OFFERING SEVERAL BAR[illegible]AINS IN POULTRY PUBLICATIONS [illegible]H RENEWAL SUBSCRIPTIONS TO [illegible]HARD AND FARM. AS AN EXAMPLE [illegible]E YEAR'S SUBSCRIPTION TO THE [illegible]IFORNIA POULTRY JOURNAL, IN[illegible]DING YOUR RENEWAL TO OR[illegible]ARD AND FARM, FOR ONLY 75c. [illegible] THE LARGE AD ON ANOTHER [illegible]. ORCHARD AND FARM, EXAMI[illegible] BLDG., LOS ANGELES, CAL.

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A profitable, spare-time business, good for $1500 per year and more. RAISE STOCK FOR US—We buy all you raise. We pay you the highest market prices and furnish perfect breeding stock. GO INTO BUSINESS FOR YOURSELF. Our booklet and details mailed for 10 cents.

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200 EGG STRAIN Pure White Indian Runner Ducks. I am now taking orders for eggs for hatching for immediate delivery. No baby ducks or old stock for sale. Prices $2 per 12 eggs; $3.50 per 25 eggs; $6.50 per 50 eggs. F. W. McCauley, El Portal, Cal.

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HEWITT'S BIG TYPE POLAND CHINAS—Bred sows and gilts. Hewitt & Hewitt, Dixon, Cal.

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DUROC-JERSEY BOARS, both weanlings and old enough for service. Prices right. Breeding and satisfaction guaranteed. H. E. Boudier, Napa, Cal.

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I NOW OFFER MY SPRING PIGS, sired by Cook's Hancherdale Jones, a grandson of the famous Gertsdale Jones, and out of big prolific sows, the best of the "Big Types." Write for prices and further information. J. H. Cook, Paradise, Cal.

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PLANT GIANT MARROW CABBAGE the year round for California's succession. Oakland customer, reordering, reports: "Five-inch trunks, solid 'marrow,' richer, hardier and vastly outyielding kales, without waste." GUARANTEED, PEDIGREED SEEDS from plants ten feet high, bearing yard-long leaves, half as wide; 500, 25c; acre supply, $2. Photos, suggestions, free.

PLANT PEAS—"GOLDEN POTLACH" BUSH PEAS—Phenomenal variety, so sweet, green and tender that "canning" is UNNECESSARY. Thoroughly soaked, ripe seeds cooking equally palatable with "canned" product. No sticking, or trouble; packets, 10c.

BEANS BETTER THAN BULLETS to win war. "Kentucky Wonder," dozen other best adapted varieties for Coast, from many years' testings—some frost-resisters. Packets, 10c.

PLANT "PURPLE PERFECTION" POTATO—Frost-proof novelty; salad specialty; CONTINUOUS GROWER, assuring TWO CROPS YEARLY for mild climates. Surprising yields. Sample, 10c; 10-pound lots, $2.50, prepaid. E. E. Martin, guaranteeing Seedsman, B-4, Bangor, Washington. "STINGS" LURK IN UNGUARANTEED SEEDS, FELLOW FARMERS.

FIELD SEEDS, GARDEN STOCK

TESTED BEAN SEED—Hardy, upland grown seed beans will increase your yields. We carry a complete stock of Teparys, Mexican Red, Pinks, Lady Washington, Small Whites, Red Kidney, Blackeyes, Bluepods and Pintos. All seed tested by U. S. Department of Agriculture. Get our booklet, "Bean Varieties and Their Local Adaptations"—a dictionary on bean seed. Write for prices before planting season. Desk F, Bomberger Seed Company, Modesto, Cal.

ALFALFA PLANTERS, get this booklet, "Important Facts About Alfalfa Seed; the Prospective Alfalfa Growers Should Know." Read it before purchasing your alfalfa seed. It will save you money and insure you better seed. We handle all varieties of alfalfa seed and can supply you with seed best suited to your conditons. Write today for free booklet, samples and prices, describing your soil and moisture conditions. Bomberger Seed Co., Desk F, Modesto, Cal.

SEED GRAIN, THRESHING Machine and Harvester Screenings Wanted—Cash paid for large or small quantities. Mail samples on which we will quote. Mercantile & Warehouse Co., Fifth and Poplar Sts., Oakland, Cal.

NURSERY TREES AND PLANTS

BEST CITRUS TREES grown from the best buds, from the best bearing trees in the famous East Whittier district. Thousands for 1918 planting. R. R. Morris, R. F. D. 1, Whittier, Cal.

PLANT RHUBARB NOW—12 plants furnish all sauce and pies for big family free; 8 plants, $1; one acre has produced $1100 first year. A. M. Jones, 1258 Cahuenga street, Hollywood, Cal.

RHUBARB—$1127 from one acre. A crop every month of the year. Write to me and I will tell you how you can do as well. J. M. Stone, Lodi, Cal. Route 4.

FLORIDA SOUR ORANGE seedlings, one year old. Write for details. Katsuragi, Twenty-third street, Upland, Cal.

PLANTS AND BULBS

FOR SALE—Yellow sweet potato plants, $2 per 1000. W. L. Lutz, Route 3, Santa Ana, Cal.

CHIROPRACTIC COLLEGES

BE A CHIROPRACTIC DOCTOR—7000 now practicing; new method of curing and preventing diseases. Catalogue free. Dr. Charles A. Gale, President, Los Angeles, College of Chiropractic, 931 South Hill St., Los Angeles, Cal.

PARCEL POST

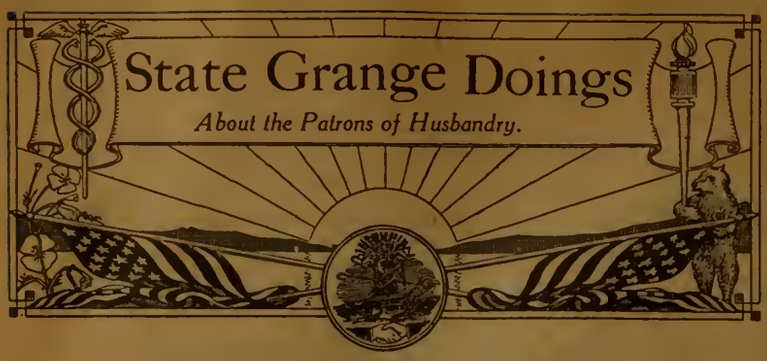
CO-OPERATION (NOT OPERATED FOR PROFIT) reduces living expenses. Particulars and catalog from Co-Operative League, Commercial St., San Francisco.

ASSAYERS AND GOLD BUYERS

GOLD, amalgam, rich ore bought, cash; assaying, 60c. Pioneer Assaying Company, 636 Market St., opposite Palace Hotel, San Francisco, Cal.

COLLECTION AGENCIES

KNOX—Spreckels Bldg., San Francisco. Debts collected everywhere, no charge unless successful.



Edited by E. C. Abbott, State Lecturer.

Orchard and Farm is the Official Organ of the California State Grange.—Editor's Note.

To the Grange Members:

THE editor of Orchard and Farm has given us a fine opportunity to make ourselves known and show what we are doing. He has offered a larger space and we are to fill it with Grange news.

Every member of the Grange has an opportunity and the lecturers have a duty to see that this is well done. Let us get to work and put California on the Grange map. Even if we are busy over the war and conservation, we can find time, if we half try, to do our little Grange bit. The reason so many of the poor immigrants that have been coming to our country make a place for themselves is because they see and grasp the opportunities we natives pass by. Shall we not grasp this one?

E. C. ABBOTT.

Boy Labor on the Farm

THE replies to a questionnaire sent out by National Grange Master Oliver Wilson as to the use and value of boy labor on the farms of various States are not very inspiring.

Here are some of the answers to the question, "Can the shortage of farm help be satisfactorily made up by high school boys or others from the towns and cities?"

California—"The shortage cannot be made up from the schools."

Colorado—"I do not think so, in Colorado, judging by past experience."

Idaho—"This class of labor is nearly useless in an irrigation country."

Illinois—"Believe it can, to a certain extent, but think this help will be more satisfactory on the larger farms, where there is more than one person to give instruction and assistance."

Massachusetts—"We are going to do the best we can with this help, but it will not fill the gap made by the going of experienced help."

Michigan—"Only in a small degree, and that in direct proportion to the degree of experience possessed by the proposed help."

Minnesota—"The high school boys or boys from towns and cities can't take the place of the farm boys."

New Jersey—"That was tried out last year and was very unsatisfactory."

New York—"We tried this last year and it was not satisfactory."

Washington—"Boys can be organized under competent leadership to pick the fruit, pick up potatoes and other work along that line, leaving competent men who are laboring on these jobs to go out on skilled farm work. The shortage is going to be more acute along in harvest time—threshing, plowing and marketing crops; but the farmers will need assurance right away of help or they will curtail amount of acreage of crops."

Tulare Grange has been holding some very interesting meetings of late. One of the questions discussed during the lecturer's hour was a half-holiday each week for farmers. The consensus of opinion was that he needed it and ought to take it if his work would permit.

A Patriotic Program

AT A recent meeting of Fort Romie Grange, the following patriotic program was given:

Singing, "America."

Recitation—Miss Dorothy Droge

Song, "My Own United States"—school children.

Reading of the declaration of purposes of the Grange—Mrs. Jennie Dudgeon.

Solo—Miss Vera McKinsey.

This was followed by the unfurling of a service flag of eight stars for the eight members of this Grange who are in the war. Mildred White made a very appropriate presentation speech.

Assistant District Attorney A. E. Warth of Salinas gave a stirring address on patriotism, which was listened to with rapt attention.

Grange closed with singing of "Star Spangled Banner." Miss Ruth Gunsolos, lecturer, had charge of the affair.

San Jose Rally Day

RALLY day with San Jose Grange was a very enjoyable affair. A class was initiated in the third and fourth degrees, after which the harvest feast was spread in the banquet hall.

The spread, which was very appetizing, contained no wheat products. It consisted of tamale pie, salads, beans, rolls, cookies, gingerbread, fruit, ice cream and coffee.

The State lecturer acted as toastmaster.

City Manager Reed spoke on "The Goat"; F. H. Babb on "Grange Patriotism"; Agnes Howe of the Normal School on "Child Training"; Charles Tibbets, lecturer, on "What the Grange is Now Doing"; Past State Master E. T. Pettit on "The Grange and Home."

Old Glory and "Hooverize, Yes Hooverize," were sung with a vim.

Vineyard Strawberries

By Lecturer Taylor

TEN miles from the city of Sacramento, surrounding the village of Florin, are hundreds of acres of table grapes in what is known as the Tokay belt.

There are four companies owning shipping and fruit sheds and box factories. If possible, a grain or pasture field is chosen, being freer from weeds. The ground is thoroughly cultivated, then thrown into ridges four feet wide, with a furrow between for irrigating. Strawberry plants are set in rows on each side, with Tokay cuttings on one side. The strawberry is profitable from one to three years and is then plowed out, leaving the field to the grapes. The berry business begins in April, with a second crop in June. A great many women and girls are employed in facing the boxes and nailing for shipment. The Dollar variety, being hard and firm, is the favorite for shipping.

The shooks for the grapes come from the mountains in carload lots and are made into crates by young boys and girls. Immediately after cultivation the vines are pruned back and sulphured when the grapes are about the size of peas. The second sulphuring is done in about six weeks. When ripe, the bunches are cut off and brought to the fruit sheds, where women and girls are employed in cutting off imperfect and green ones. Then they are packed in crates holding 24 pounds. In the bunch pack the grapes are placed without cutting the bunch. In the cluster pack, the largest and best are selected and often tied with ribbons.

Hooverize, Yes Hooverize!

Tune, "Maryland, My Maryland."
Try this at some Harvest Feast.

COME now and sing our simple song,
Hooverize, yes, Hooverize!
The song is short, the work is long—
Hooverize, yes, Hooverize!
It calls for all, both young and old,
The song is sung, the story told,
'Twill win the war, 'twill win the gold.
Hooverize, yes, Hooverize!

The call goes out that all may hear,
Hooverize, yes, Hooverize!
The call to each is loud and clear;
Hooverize, yes, Hooverize!
The rich and poor, yea, all must save
To help the valiant and the brave
Who fight the wars beyond the wave.
Hooverize, yes, Hooverize!

The Turk and Hun will strive to win;
Hooverize, yes, Hooverize!
The battle's fierce, hear now its din.
Hooverize, yes, Hooverize!
We'll join and save, and save and fight,
We'll Hooverize from morn 'till night,
And win the battle for the right.
Hooverize, yes, Hooverize!

God Has Not Spoken Yet

GOD has not spoken yet!
The world's dread Horror struggles to its close;
Where France's slopes today with blood are wet,
Next year will bloom the lily and the rose.

God has not spoken yet!
But when God speaks, whose side will God be on?
Will He the Hohenzollern crimes forget—
Give night and shame, or Liberty and dawn?

God has not spoken yet—
But courage must not fail, nor faith grow weak;
TO WORK!—for Freedom's sun must never set.
God has not spoken yet, but God WILL SPEAK!
—Ella Higginson.

As to the Non-Partisan League

THE Grange is not identified in any way with the Non-Partisan League and stands responsible in no way for its principles or its results. Efforts that have been made in countless cases, to so entangle the Grange should be repudiated at every point, for the Grange and the Non-Partisan League are moving from absolutely different viewpoints and have no common basis. The Grange was here, doing valuable service for the farm people of the United States, long before this movement of the Northwest was even dreamed of; and it may still be here after that movement has been forgotten.

The Grange is non-partisan in the true, broad sense. Its service is selfish and continuous for the farm interests of America. The Grange seeks no class legislation or special favors for farmers, simply because they are farmers, but names as its supreme ideal "The greatest good to the greatest number." The Grange is absolutely loyal to its Government and tolerates within its meetings and among its leaders no spark of even the suggestion of disloyalty.

On these four decisive issues the Grange and the Non-Partisan League are as wide apart as if oceans separated them. Let this fact be here and now made clear to everyone, that whatever may be the future of the Non-Partisan League, no responsibility for that future rests upon the Grange or upon the real leaders of the Grange. As the two organizations go on, the fruits of each shall prove it, of what manner it be.—National Master Oliver Wilson.

Grangers' Tamale Pie

THIS is the way we make the tamale pie.

Two pounds beef—neck preferred.

Two cupfuls cornmeal.
Six cupfuls boiling water.
One teaspoonful salt.
One-quarter teaspoonful red pepper.
Two cupfuls strained tomato.
One onion.

Make a mush by stirring cornmeal into the boiling water, adding one-half teaspoonful salt. Cook in double boiler 45 minutes. Boil meat until tender, cut into small pieces and season with pepper and one-half teaspoonful salt. Thicken the liquid in which meat was cooked and add tomato. Brown the onion in one tablespoonful fat and mix with the seasoned meat and gravy. Grease baking dish and place layer of mush in bottom, then add meat and gravy, spreading rest of mush over the top and covering for the first hour of baking. Mush should be quite thick. Bake one and one-half hours.

Here, There and Elsewhere

POWER on the farm and the utilization of the various kinds of available motors as far as possible to help solve the problem of labor shortage were recently discussed by Danville Grange. A speaker from the university explained the various motors and cost of installing.

Any Grange desiring a speaker on some special agricultural topic can write to Prof. W. T. Clarke, Berkeley, Agricultural Extension Department, and he will send one, the university paying all expense except the hall and local press notices.

The lecturer of Orangevale Grange thinks that every Grange should salute the flag and sing "America" and "Star Spangled Banner" from memory at each Grange meeting. Is she right?

Connecticut, not much larger than a California county, has 163 Granges with over 18,000 members. What a power such an organization has for the good of the farmers of that State.

The largest Grange in the world is the one at Houlton, Maine, with 1,000 members. That is the place where they raise so many potatoes.

More Cotton From California

Development of Long-Staple Industries

EGYPTIAN cotton, well adapted to the irrigated valleys of Arizona and California, is believed o be the best type to plant in new reas under present conditions. Exerimental plantings of this cotton in he San Joaquin and Sacramento Valeys have resulted favorably and its roduction is being extended to these ections.

The scarcity of extra staple cotton nay be understood from the fact that 0 to 80 cents a pound has been paid ecently for superior grades of Egypian cotton in Arizona, for which 25 ents formerly was considered a good rice.

Decline in production in Egypt and he difficulty in importing this crop nce the war, together with the reuction in our Sea Island crop as a esult of boll weevil injury, are reaons for the present situation.

The needs of American manufacrers for cotton of the Egyptian type, they were to be met by home prouction, would call for the planting f several hundred thousand acres.

Renewed interest in the possibilities f cotton culture in the San Joaquin nd Sacramento Valleys of California as resulted from favorable reports of xperimental plantings in several loalities last year. The idea that cotn could become an important crop California has been very persistent, nd the rapid development of cotton roduction in recent years in the Imerial and Colorado Valleys now lems likely to extend to other parts the State.

Mistakes of Earlier Efforts

It is to be hoped that the mistakes the earlier efforts with cotton in e San Joaquin Valley may not be peated in the new effort that is now ing made. In the period of high ices that followed the Civil War, ort-staple cotton was grown in comercial quantities at several places in e San Joaquin Valley, but was abanned as soon as normal conditions re restored in the Southern States. other period of war conditions and h prices is now making shortple cotton a profitable crop in Calirnia, but there is very little prosct of being able to maintain a shortple industry after normal condiins are restored.

The danger of direct competition th the South can be avoided by owing a different kind of cotton. stead of the short-staple Upland e of cotton, which is grown in the uthern cotton belt, it is now very tinctly to the advantage of the uthwestern farmers to plant Egypn cotton, which is well adapted to e conditions of the irrigated valleys Arizona and California. With cotn, as with every other crop, a faile to take into account the differces of the varieties may lead to stly mistakes.

Results With Egyptian Cotton

The Egyptian cotton is very differ t from the Upland type, being a ler and more slender plant, with rrower leaf-lobes and smaller bolls. is last feature often leads people m the South to suppose that the ld must be small, whereas in reali the Egyptian cotton often yields ry well, a 500-pound bale or more r acre having been obtained on y farms in the Salt River Valley Arizona. Although some of the rly plantings of imported Egyptian ed gave very unsatisfactory results, ch better behavior has been sered regularly for several years from the varieties that have been bred in Arizona by the United States Department of Agriculture. About 30,000 acres of Egyptian cotton were grown in the Salt River Valley in 1917, with a return to the farmers estimated at $5,000,000. Recent estimates from this and other valleys indicate that nearly 100,000 acres of Egyptian cotton will be grown this year in Arizona.

The Arizona varieties have been grown not only in the Yuma, Palo Verde and Imperial Valleys of Southern California, but have been found well adapted to the southern part of the San Joaquin Valley, around Bakersfield and Fresno. Experiments have been conducted in this region for several years past. Further experience will be necessary before the Egyptian cotton may be considered as an assured crop in districts farther north, although the same varieties grew and ripened satisfactorily at several points in the San Joaquin and Sacramento Valleys last year.

The season of 1917 may have been unusually favorable for the ripening of cotton in the Sacramento Valley, but even where rather low yields were secured on account of late planting or other unfavorable cultural conditions, the results are considered profitable.

Organization of Arizona Industry

It has been possible to develop the new industry in the Salt River Valley only because the farmers were organized and no short staple cotton was planted in the communities where Egyptian cotton was grown, and no inferior stocks are continued in cultivation. Although some of the settlers were strongly inclined at first to the short-staple varieties with which they had been familiar in the South, the local sentiment is now very strongly in favor of the community plan of growing and maintaining the seed of a single superior variety.

With cotton, as with other crops, the labor problem is likely to present the chief difficulty, but with cotton the special demand for labor comes in the fall, after most of the other crops have been gathered, and a certain amount of labor is available. A crop that would provide employment during the late fall and winter months would be in the interest of fruit-growing or other special industries, which are the chief reliance of many of the districts where cotton might be grown.

Advantages of Cotton in Cropping

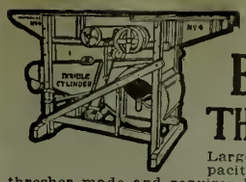
In some districts there is special need of such a crop as cotton, that can be grown in rotation with rice, to rid the land of water grass or tules, which render continuous rice growing impracticable.

Drainage will be a problem in some districts, but in others the water-table is at least 3 or 4 feet below the surface, and is not likely to interfere.

Egyptian cotton is likely to be more useful than Upland cotton for shading out the grass, because the plants are larger. Also there are many lands not now used, or yielding only small returns for grain or pasture, but likely to yield good crops of cotton, as recent experiments indicate.

In many cases the food and fodder value of the seed alone might be much greater than that of crops now being raised for such purposes.

The demand for cottonseed oil was increasing rapidly even before the war, and local supplies of cottonseed meal are needed by the livestock industry of California.



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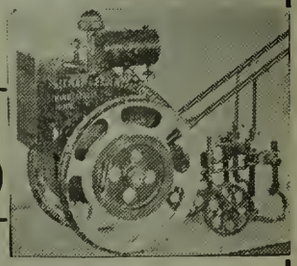

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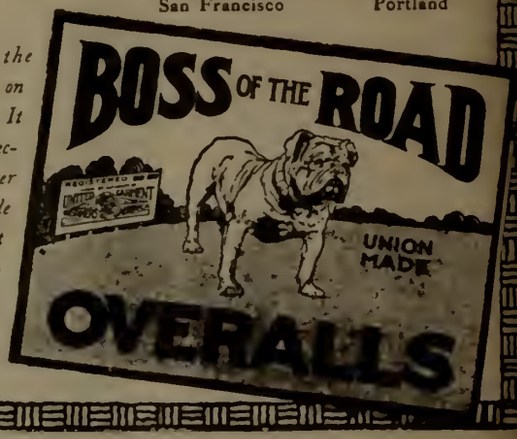

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912,

OF

ORCHARD AND FARM

Published Monthly at Los Angeles, California

for April 1, 1918

STATE OF CALIFORNIA
COUNTY OF LOS ANGELES } SS.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Bailey Millard, who, having been duly sworn according to law, deposes and says that he is the Publisher of the Orchard and Farm and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Name of	Postoffice address
Publisher, Bailey Millard	Los Angeles, Cal.
Editor, Bailey Millard	Los Angeles, Cal.
Managing Editor, Bailey Millard	Los Angeles, Cal.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock).

William R. Hearst	New York
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5. That the average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is **40,143**
(This information is required from daily publications only.)

Signed BAILEY MILLARD,
(Publisher)

Sworn to and subscribed before me this 10th day of April, 1918.
(Seal) H. O. HUNTER, Notary Public.
(My commission expires May 18, 1918.)

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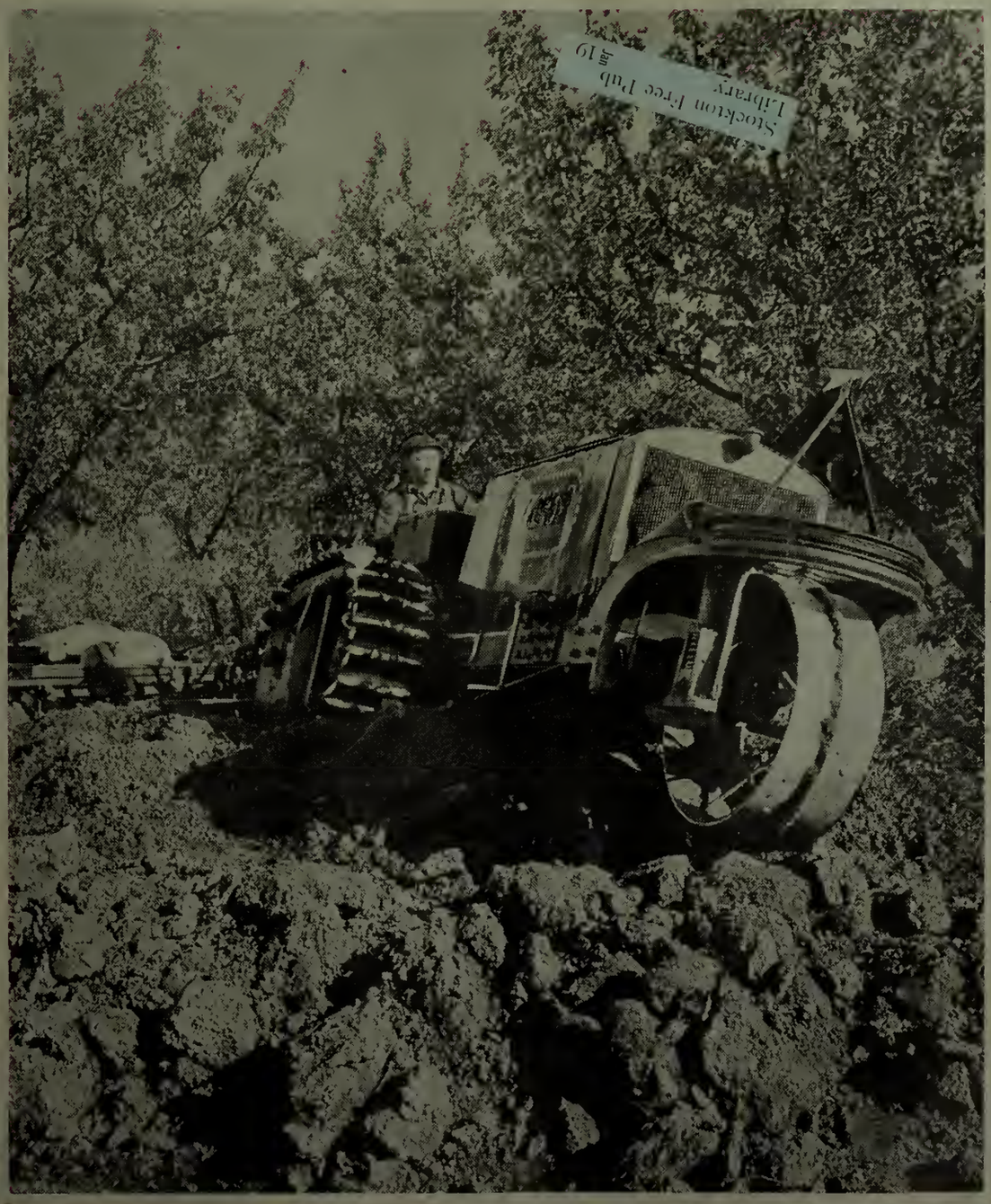

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Through the use of electric motors many farmers are also securing the high production obtained in the big manufacturing industries.

Over 200,000 H.P. in G-E motors is now at work in this way on the Pacific coast.

2500 G-E Motor Agents throughout the country are ready to help you reap the benefits of doing your work the electrical way.

G-E Motor Drive

GENERAL ELECTRIC COMPANY

General Office, Schenectady N.Y. Sales Offices in all large cities

If readers of this publication do not find advertised just what they are looking for, write Orchard and Farm, Examiner Building, Los Angeles, and you will be put in touch with reliable firms handling the goods desired.

Auto Trailers $85 and up. 2 or 4-wheel type. Any capacity.
Let us figure with you in making over your old touring car into a 2 or 3-ton truck.
Truck attachments $350 and up. Made for any automobile up to 3-ton capacity.
Made in San Francisco. Write for descriptive circular.
Territory Open for Agents.

RELIANCE TRAILER & TRUCK CO., INC.
30 Eighth Street, San Francisco, Cal.

Illusive Farming Finance

Federal Land Bank of Berkeley
Berkeley, Cal., June 12, 1918.

EDITOR of Orchard and Farm, Dear Sir:

In your June issue appeared an article entitled "Illusive Farming Finance." Inasmuch as your journal has a wide circulation among the farmers, and inasmuch as this article very seriously questions the methods of the Federal Farm Loan Board, and especially those of the Federal Land Bank of Berkeley, I feel it only proper that we should make our position a little clearer to you.

The particular point which you seem to be under some misapprehension is the function of the Farm Loan System and the Federal Land Banks. Your idea seems to be that the sole function of this institution is to lend money to farmers who need it. Our idea is to lend money to farmers for certain specific worthy purposes and upon unquestioned security which will endure through the long term of the loan. Our trusteeship not only extends to the farmers but to the bond buyers. We must be just as careful to see that the integrity of our bonds is maintained as we are to extend to the farmers in a legitimate way the benefits of the act—otherwise the system would not endure.

The recent campaign for the sale of Farm Loan Bonds has just closed, with the result that within two weeks Sixty Million Dollars of these bonds were sold to the investing public all over the United States. Are not these investors to be protected, and are they not to continually have the assurance that these bonds rest upon mortgages which are sound and the security for which will be maintained during the term of the bonds?

You ask in your article, "What would be the matter with advancing the loans first and waiting for the settlement of the water questions afterward?" If such a policy had been adopted in this great district, which includes four States, we would have made questionable loans. We would have in some cases locked the stable after the horse was gone.

You also ask, "Could not the Government in the present emergency afford to take a chance?" This might be answered that while the Farm Loan System is regarded as an instrumentality of the Government its bonds are not guaranteed by the Government. The system is expected to stand upon its own bottom and to make only such loans as will guarantee payment of our bonds when they become due, and of the interest upon them in the meantime.

It seems to me of the very utmost importance that during the initial stages of the operation of this system we should build on the surest of foundations; we should from the very start inspire in the mind of the investing public an absolute confidence in the soundness of the securities we shall continue to ask the public to buy, for if ever the integrity of our bonds were questioned and they could not be freely sold, the operation of the system would of necessity be gradually throttled.

Up to the present this bank has made loans in the aggregate amount of about $6,500,000, and we are continuing our operations, perhaps a little slowly but we think with entire safety to the future of the system.

We have made some loans in Imperial Valley, all of which we believe are perfectly sound, but in view of the fact that certain physical hazards undoubtedly exist in that region, and in view of the fact that our loans are made for long periods of years, we have felt it is only proper and right that we should feel a greater sense of assurance as to the ultimate duration of the security in that district before proceeding generally to make loans all over the valley. We should know what parts of this great region may expect to continue to receive an adequate water supply. Both last year and the year before there was a shortage in some parts of the Imperial Valley. We must also know those localities which are being menaced by a rising water table and which in the course of time will require drainage. We must know about unfavorable subsoil conditions which exist in certain portions of the valley It requires some time to secure all the information which we feel we should have, and owing to the water conditions which prevailed in the Imperial Valley last year and the year before, it would seem that the best time to make our report and secure our information was during the period when these conditions would be the most apparent.

Yours respectfully,
W. H. JOYCE, President.

REPLY OF THE EDITOR

Mr. W. H. Joyce,
President Federal Land Bank of Berkeley,
Berkeley, Cal.

Dear Mr. Joyce:

In reply to your letter of the 12th inst., we would say that Orchard and Farm has no misconception of the functions of the Federal Land Bank or of the duties of its officers.

If you had read our article very carefully you would have seen that it was not an attack upon the bank or its methods, but upon the narrow legal restrictions under which you were operating. We wish to go upon record as saying that under these limitations you are doing very well for the farmers of your district—certainly much better than your predecessor, Mr. Burrell G. White, whose removal from office followed very closely after the expose of his dilatory methods made by Orchard and Farm and the San Francisco Examiner. As a man who owes his position primarily to those publications as much as to any other cause we think it a little strange that you should persist in miscontruing what we have said about the bank's operations under your management.

We also think it more than a little strange that the Land Bank of Berkeley should have ONLY ONE MAN to act as engineer appraiser, for because of its having ONLY ONE SUCH MAN the ranchers of the Imperial Valley have to wait three or four months to have their lands appraised after they have sent in their applications for loans.

Now as to the extra risks involved in making these Imperial Valley loans permit us to call your attention to what we said in commenting on the case:

"But, granting that there would be considerable risk, is not the risk of a lack of food production in this crisis far worse than a possible financial loss to a Government that is spending billions upon billions to win the war?

"And if the Farm Loan Act will not permit of such transactions, why, in the name of the great Jehovah and the Continental Congress, doesn't some legislator at Washington see that it is amended to meet just such a case?

"Imperial Valley ranchers are recommended to the tender mercies of the private bankers and the money sharks! Have they not had ample experience with them? Is there no relief in sight?

"Get busy, Mr. Congressman, and help the farmer to help Hoover to help Uncle Sam to win the war!"

Yours very truly,
BAILEY MILLARD,
Editor of Orchard and Farm.

ORCHARD and FARM

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WOULD SINGLE TAX AID OR INJURE THE LAND OWNER?

Vivid Presentation of Each Side of the Great Question by the Leaders of the Two Armies of Voters Who Are For and Against the Amendment.

How It Would Benefit Him

BY LUKE NORTH,

Vice President of the National Great Adventure for Single Tax

SINGLE TAX will aid every worker, and discourage every shirker. Employer or employe, tenant or owner, whoever gives his time, his thoughts, energy, or muscle to the increase of human supplies will be greatly benefited by Single Tax. That is its purpose—to aid production and distribution, to secure to every worker the full product of his toil; to discourage and to deny those whose "work" consists merely in taking away, in absorbing, cornering, manipulating—with the only aim of "getting the money."

Single Tax will make speculation and monopoly unprofitable, and leave industry free to reap what it sows. It will put an end to the creation of fictitious, inflated values, and throw the wealth of the world into the laps of those whose thought, care and work have produced it.

That Single Tax will accomplish this is generally admitted. It is opposed for that reason. Nearly all its opposition comes from the interests of monopoly and speculation. Were it not for a small class of timorous voters, we might almost rest our case in California this year with this injunction:

"Judge of the rightcousness and justice of Single Tax by the interests that oppose it!"

To the man and woman whose interests are wrapped up in speculation and monopoly the Single Tax appeal can only be moral, humane, patriotic. "Forget your selfish interests for the common good," we say—in times of peace. But now the integrity of the republic is at stake, the very existence of the nation depends upon our food production. Everywhere the legend and the truth "Food Will Win the War!" stares us in the face.

Food comes from the land.

It cannot come from land held idle for speculation.

There are 20,000,000 idle acres in California.

A Single Tax on the value of land will make it unprofitable to hold these acres out of use; they will be thrown open to settlers at prices that will enable the purchasers to pay for the land out of its produce, and still have a fair margin left for themselves.

No one doubts that Single Tax will do this, but the timid ones cry, "Oh, the change will be so sudden!"

Meet Our Greatest Need—Food

Not so sudden as the world war was thrust upon us by a mad Kaiser; not so sudden, or so drastic, as the call came to call our young men to the field of bloodshed; not so sudden as the financial crashes and panics only not so sudden as every once in [illegible] the bottom drops out of our [illegible] institutions and thousands of [illegible] and home owners [illegible] savings and are pushed [illegible] market

[illegible] hard times, yet

(Continued on Page 32)

How It Would Injure Him

BY ALBERT E. KERN,

President Anti-Single Tax Association of California

BEWARE of the Single Tax! It is American Bolshevikism.

The people of California will be called upon for the fourth time to vote down Single Tax at the polls in November. Single-taxers from all over the United States are lending their influence and donating their money to secure the passage in California of this most iniquitous measure. This bill is very plain, it is very simple. If it is adopted it will untax every other thing and place the entire burden of maintaining the State, county, city and town upon the owner of land.

It is being promoted by the Single Taxers of California, who are headed this year by Luke North of Los Angeles and financed by capital outside the State of California. Mr. North in this issue of Orchard and Farm makes the statement that "Single Tax will aid every worker and discourage every slacker." "Employer or employe, tenant or owner, whoever gives his time, thought, energy or muscle to the increase of human supplies will be greatly benefited by Single Tax. That is its purpose—to aid production and distribution, to secure to every worker the full product of his toil . . . it will put an end to the creation of fictitious, inflated values, and throw the wealth of the world into the laps of those whose thought, work and care have produced it." He further states, "that Single Tax will accomplish this is generally admitted."

We are glad that it is not "generally admitted," but only admitted by the Single Taxers, the followers of Henry George, the father of Single Tax, who has laid down as a fundamental principle the astounding proclamation that "PRIVATE OWNERSHIP OF LAND IS A BOLD, BARE, ENORMOUS WRONG." Can any sane man believe in Single Tax, which has as its foundation such a principle as this?

Mr. North makes the above statements, but does not explain how, or when, or why the Single Tax will produce the results which he so boldly claims for it. His article is like most of the arguments of the Single Taxers, utopian in its conception, but wholly radical and impracticable in its application. THE ENTIRE SYSTEM IS THAT OF SOCIALISM AND IS EMBODIED IN THE MISTAKING THE YEARNINGS OF ONE MAN FOR THE EARNINGS OF ANOTHER.

Not Born On the Farm

The Single Tax was not born out on the farm. It was born in the great centers of population from that deluded portion of our people who live in the canyons of office buildings, and who do not know that the seasons ever change; from the gentlemen who have no idea of where the

(Continued on Page 32)

Our Single Tax Debate

THE Single Taxers are preparing for a big drive this summer and fall. They polled over 260,000 votes in California in 1916, and they say that they will poll 70,000 more at the next election and win the State.

Do the farmers want taxes levied on land values alone? What are the arguments for and against Single Tax? Orchard and Farm begins today a great debate on the question.

Would Single Tax Aid or Injure the Land Owner

Luke North, vice president of the National Association known as "The Great Adventure for Single Tax," puts the case for the Henry George theorists, and Albert E. Kern, president of the Anti-Single Tax Association of California, replies. In the August number Mr. North will argue against the opponent of the George theory and in turn will be answered by the Anti-Single Taxer. And so the debate will continue back and forth up to election time, the last installment to be published in the November Orchard and Farm.

Anyone who owns land will of course be affected by the proposed Single Tax amendment to the Constitution of California and, therefore, will want to read every word of this great debate.

All voters, and particularly students of political economy, will also find the controversy a highly interesting and educational one.

Being vital to our farmers, the facts set forth in this debate will be closely perused by them.

If you are not a subscriber to Orchard and Farm send 25 cents now to this office and thus secure all the numbers containing this tremendously important feature—a liberal Single Tax education in itself. Do this today!

How to Dehorn Cattle

DEHORNING cattle is almost universally practiced by stockmen who raise high-grade steers. Cattle without horns are easier to handle, have an equal chance at the feed trough when placed in the feed lots, are less dangerous to attendants, and are more uniform in appearance. Also, they can not gore one another in the feed lot or in transit to market, which causes greater shrinkage in weight, injures the skin

Dehorning Saws

These saws are light and convenient. A one-inch blade is the most satisfactory because it is not so liable to run to one side in the horn. The blade should be kept tight to avoid this trouble.

for commercial purposes, and leaves the flesh in a bruised condition, thus detracting from its value.

While there are many cruel ways of performing this operation, according to the Department of Agriculture, one of the simplest and easiest methods is to use caustic, either soda or potash, on the undeveloped horns of the calves. To obtain the best results, the caustic should be applied when the calf is from 4 to 10 days old. Clip

Plan of Dehorning Chute—Front View

the hair from around the knobs where the horns are developing. With a slightly moistened stick of caustic rub each horn alternately three or four times, allowing it to dry each time before applying the next. Extreme care should be taken not to have the stick so wet that the solution from it will run down the side of the calf's head. To prevent the spread of the caustic,

Another Type of Dehorning Chute With Sloping Side.

which will cause sores on the skin, apply vaseline around the edge where the hair has been clipped.

For older cattle, where the horns have developed, either saws or clippers should be used. It is best to use the clippers on the young animals when the horns are still soft and tender, but with older animals which have hard brittle horns the saw should be employed. While the operation can be performed with clippers quicker and with less pain, this instrument is liable to crush the bone in older animals, causing a wound that heals very slowly.

If possible, the operation should be performed when the weather is cool, but if done in fly-time coal tar or pine tar will prevent fly injury. If worms appear pour gasoline into horn cavities. A more humane treatment would be to saturate cotton with chloroform and insert in the wound.

To make a clean cut the animal's head should be clamped into a firm position. For this purpose dehorning chutes such as are shown in the cuts are used. Complete details for making dehorning chutes may be found in Farmers' Bulletin 949 of the Department of Agriculture. This bulletin also gives advice as to castration.

Profits in Emperor Grapes

By D. J. Whitney.
Of Exeter, Tulare County, Cal.

SAY that a person has some raw land in the great citrus belt of Central California, a section where a number of kinds of fruits are profitably grown, and he wants to know what to plant. He will, if he knows his business, think, among other things, of Emperor grapes, and this will give an outline of the conditions he will face with these.

They are not a new crop for the section, but have met renewed popularity the last half a dozen years and new plantings are numerous. Of course, it is well to pause before starting a business into which others are rushing on account of fat profits, hut nearly all fruits, well raised, are popular now, so none is as likely to be overdone as if only one or two were booming. The California fruit grower has a dozen or a score of strings to his bow, which makes it unlikely that any good string will become much frayed.

The first Emperor grapes in this immediate vicinity were planted about 20 years ago by a man named Frost. He was stopping at a Porterville hotel at the same time as an agent of the Earl Fruit Company. The latter got notice of several cars of Emperors selling in the East from the Minnehaha vineyard of Fresno for about $3200 per car.

"That's the thing for me," said Frost. So he set out 70 acres of them a couple of miles from the present home of the writer, but up to the time the vineyard was sold, about 10 years ago they had only given a profit one year. Since then they have, as a rule, proved a bonanza to the new owner, outclassing completely any orange orchard in the immediate vicinity. In 1917 the last car shipped sold for $3600, or more than the high prices of 20 years ago.

A Profitable Vineyard

Another side of the story is shown by the 18-acre vineyard of A. C. Dungan, planted near Exeter eleven years ago. Mr. Dungan purchased 30 acres of sediment soil near Exeter, intending to plant it to oranges. One acre was reserved for house and yard. Dungan's finances would only stand the strain of planting ten acres of oranges, and so the other 19 acres were planted to Emperor grapes, with the intention of grubbing them up and planting oranges when finances permitted. One acre of this was later sold for a railroad right of way.

The oranges are just now getting down to business, but the grapes have brought in a total of $65,000 during the ten years. So, if the owner had been well enough off to have planted oranges on the whole 30 acres, he might have been "broke" by this time, for an orange orchard is an expensive thing to bring into bearing.

Some Emperor Figures

The oranges made their first substantial crop in 1916, and lost it by early fall frosts. They had a small crop which brought in good returns last year, and are about in full swing now, but the grapes brought in $155 in 1908 the year after planting; $777.19 the next year; $1749.81 the next year and after that were in full production.

In 1911 they sold on the vines for $5000 and in 1912 for $2600. In 1913 the net returns were $9113.77. Later returns are gross, that is, packing charges have to be taken out and these are not obtainable, save that for crates they are approximately 25 cents and for drums 95 cents. These returns are: 1914, $7716.32, 1915, $12,182.18; 1916, 10,039.71, 1917, $14,850. Outside of shook and packing charges the cost per acre per year of attending to the vineyard is approximately $75. Definite figures cannot be given, as the whole place is operated as one.

The total expense of operating the 29 acres in 1918 including packing charges for grapes, was $5472, so it can be seen that there is a good surplus.

Reasons for Success

One reason why the Emperor is such a promising crop here is the extreme favorableness of the locality for grapes, particularly this and one or two other varieties. Emperors are an extremely late grape, so must have a very hot, dry climate to ripen them properly. They get that from Fresno south, but as they go north from there they stand a greater and greater chance of damage by fall rains and of delay in ripening early enough and with enough sugar Fall rains may come in this section, but serious damage only results if it stays cool and damp for a spell after the rain and in this section that is a very rare thing. There was some damage in the unusual fall of 1916, but that came more to Eastern purchaser than California producer.

The place for Emperors is skirting the foothills on lands where many orange groves have been planted and in the majority of instances, improperly planted. A fairly frost-free location is advisable, though frost injury is very rare, and the grapes color better and ship better in such locations than they do far out on the floor of the valley on more moist land.

While oranges are a very delicate crop and a little poor handling, or a hot spell, or a cold spell at just the wrong time, may knock off most of the crop, Emperors grow on vigorously and ignore unusual weather. A little too much water, or a little delay with water in irrigating, has no noticeable influence. The only special pest is mildew which is nicely subdued by sulphuring. Vine hopper bothers to speak of only the first year or two. Meanwhile the variety is a tremendous grower and yielder. It will yield a little the second year, a substantial amount the third year, a pretty fair crop the fourth year, and a great deal later.

Although running expenses are about the same as for oranges, the cost of starting a vineyard is much less, mainly on account of earlier bearing, but also through price of stock. Citrus trees may average about

(Continued on Page 27)

Whitewashing Outfit

A GOOD whitewashing outfit [illegible] a handy thing to have about [illegible] hennery, dairy or stable.

Where a very limited surface is t[illegible] treated, as for example, one stal[illegible] may be possible to apply disinf[illegible]tant in a satisfactory manner [illegible] means of a whitewash brush.

In all cases, however, the b[illegible] method of applying the disinfect[illegible] and the lime wash is by means [illegible] strong spray pump. Such should [illegible] equipped with not less than 15 fe[illegible] hose, to which may be attached [illegible] 5-foot section of iron pipe of t[illegible] same caliber.

With a spraying nozzle at the e[illegible] of the pipe, the operator will b[illegible]

Handy Whitewashing Outfit

abled to proceed with the gre[illegible] possible dispatch and the l[illegible]t p[illegible]sible inconvenience.

The entire interior of the sta[illegible] should be saturated with the disinf[illegible]tant. Special attention shou'd [illegible] given to the feeding troughs [illegible] drains. After the disinfectant [illegible] dried, the surface may be spray[illegible] with lime wash, provided this has n[illegible] been combined with the disinfect[illegible] as previously described.

When the work has been complet[illegible] it will be advisable to open all do[illegible] and windows of the building for t[illegible] admission of air and light.

How to Have Healthy Hens

IF a good type of laying hen i[illegible] pected to do its best in product[illegible] she must be in excellent hea[illegible] the digestion must be fine, the as[illegible]lation of the elements must be perf[illegible] and continually going for two [illegible]poses, daily sustenance and egg pr[illegible]duction. If the feed is changed [illegible]denly or radically, the assimilation [illegible] interfered with to more or less ex[illegible] hence egg ripening does not get [illegible] uniform proportion of the element[illegible] right along, so a drop in produ[illegible] may show

If a sick bird shows by colds, c[illegible]ker, scabby formation or other [illegible] of trouble, it should be separated [illegible] once from the flock and given r[illegible] treatment. There is no necessity [illegible] use the axe in these days, except [illegible] cases of going light, tuberculosi[illegible] where a bird has been allowed t[illegible]gress so far in disease that it i[illegible] hopeless case Such an instance is t[illegible] fault of the breeder.

When medication is given it s[illegible] be done regularly, each day t[illegible] fount should be scalded out daily [illegible] pen or box kept clean and good, c[illegible] food supplied. One or two days' [illegible]ication will not avail in any c[illegible] contagious disease The tr[illegible] been running some time, s[illegible] time and patience to r[illegible] ture does not work mira[illegible] ing conditions in the [illegible] hours

Plenty of fresh air, [illegible] houses, exercise in deep li[illegible] flock, abundant green [illegible] [illegible]l water, sanitary [illegible] [illegible]t to give exe[illegible] will do more for r[illegible] any other thing.—[illegible] dena, Cal

Whole Dairy World Watching Wonderful California Cow

She Averages 113 Pounds of Milk Daily for 113 Days

FOR one cow to produce 929.4 pounds of milk in seven consecutive days and 3795.6 pounds in 30 days is certainly going some. That is the record of Raphaella Johanna Aggie 3d of the Napa State Hospital Dairy, and there is not another cow in the country that ever equalled it. It is more than six times the record of the average cow. Mention was made of this wonderful animal in May Orchard and Farm and there was a paragraph or two about her record. But that record has grown since May and is still growing.

Raphaella, one of the sweetest and most docile creatures in the whole bovine world, has been continued on test since that time and she will be kept at it for 365 days in the hope of breaking the world's milk record for that period.

It looks very much as if she were going to boost the figures for a year's milk production for a single animal. V. L. Heath, who has her in charge and is giving his closest attention to her care and her milking, reports to Orchard and Farm that in 113 days she is running ahead of her previous record. She is still going strong with an average of 113 pounds daily for her test period thus far.

Milks Three Times Daily

Mr. Heath, the manager of the State Hospital Dairy, made the discovery some time ago that by milking the cows three times a day he could increase their milk output over 40 per cent. He has stuck to this practice in every case and it has worked out successfully and without the slightest injury to the herd.

Some months ago it was announced that Raphaella had made the second record for milk in a week. But she produced 3795.6 pounds of milk, 1899 quarts in thirty days. She is ahead of them all.

The previous figure for that period given by the owner as 3767.3 shows that the same cow has a good claim for consideration for the world's total.

It may be said that the whole [illegible] of Holstein cattle [illegible] that the [illegible] cows of the breed are proud of her?

Other Heavy Producers

There are now 31 pure-bred Holsteins that have each produced more than 40 pounds of butter in a week, one of the latest records being made by Leafy Veeman De Kol of Cortland, N. Y.

There are presented on this page the pictures of two of the leading Holsteins, one of them being Raphaella Johanna Aggie 3d and the other Vickery Vale Beechwood. Vickery Vale Beechwood is shown with the equivalent amount of butter she produced in a year. Twenty tubs—count 'em. The average cow quits when she produces four tubs, or a little over 200 pounds, in a year.

Raphaella Johanna Aggie 3d of Napa, Cal., the Cow That Has Broken the Thirty-Day Milk Record by Producing 3795.6 Pounds, or 1899 Quarts, and Still Going Strong.

FROM MANAGER HEATH

State Hospital, Napa, Cal., June 24, 1918.

Editor Orchard and Farm:

I wish on behalf of the State Hospital and myself to thank you and your paper for the interest shown in the work we are trying to achieve at the Hospital Dairy, also to thank you for the publicity given our herd in the columns of Orchard and Farm.

Please convey to the writer of the article, which appeared in the May issue of your paper, my congratulations for the original and unique expression displayed in that article.

Wishing you success with your paper, I am very truly yours,

V. L. HEATH,
Superintendent State Hospital Dairy, Napa, Cal.

The World's Champion

Vickery Vale Beechwood, in producing a half ton of butter in 365 days, has done the work of five ordinary cows. Some 200 other Holsteins have a like amount of butter to their credit, while many others have an even greater production. The world's champion butter-producing cow is the pure-bred Holstein, Duchess Skylark Ormsby, with the enormous amount of 1506 pounds of butter, produced in one year, to her credit. It is this cow whose record Raphaella is going after and which she has thus far distanced.

Vickery Vale Beechwood, One of the Cows Raphaella Is Up Against. Vickery Produced Twenty Tubs of Butter Similar to Those Shown in the Picture, or 1000 Pounds, in One Year.

Here's Your Community Drier—Get Busy and Build One

This Will Tell You Just How to Do It.

A LOT of people are writing to Orchard and Farm about dehydration, the great ranch topic of the hour.

"Your paper has a good deal to say about the drying of fruits and vegetables," says one correspondent, who hails from Chico, Cal., "but how can we orchardists and vegetable growers erect a plant that would suit our needs as a community and yet not be too expensive?"

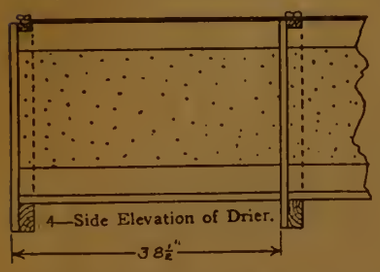
Well, it is a question that is not easily answered, for the needs of your community are not outlined in your letter, Mr. Chico man. But here is a shotgun answer that may do for your district and for a large number of others on the coast.

It is a description of a successful community dryer written by C. W. Pugsley, Director of Agricultural Extension of the University of Nebraska, and given government recognition and commendation in a recent bulletin sent out by Secretary Houston.

The drying plant is located at Lincoln, Neb., but it is almost identical with that planned and built for eleven other communities in the Middle West. These plants were all in successful operation during the summer and autumn of 1917.

It Is a Dry Blast System.

The system is an adaptation of the electric-fan process of drying. A stream of dry air is caused to flow continuously over the products being dried. The humidity of the air, the



4—Side Elevation of Drier.

method of preparation of the vegetables and the velocity of the air current have much to do with the rapidity of drying. It is easy to understand how this process operates when we consider how rapidly wind will dry roads after a rain, or how much more rapidly clothes dry in a breeze than when the air is quiet.

Instead of the air being forced across the vegetables, as is done in some methods, the air is drawn across them. Laboratory tests indicate that drying is considerably accelerated when the suction method is used, although the force method will dry satisfactorily and is used in at least one Nebraska plant.

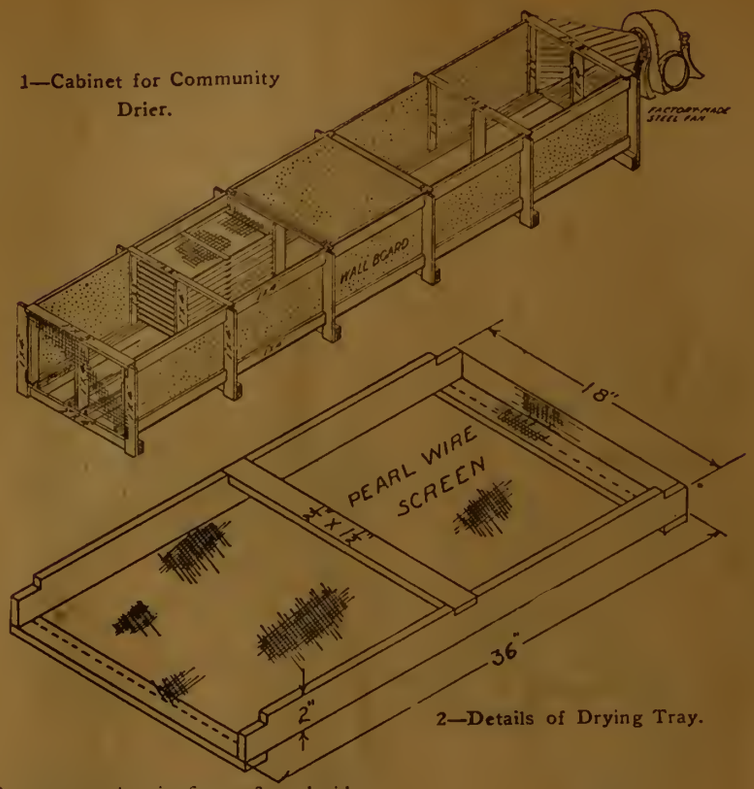
Costs Only $250.

A simple community drying plant to be of most value should be easily constructed from material ordinarily found in the community. It should be possible to operate such a plant without expert help and by power easily available. The drying plant here described can be built complete for $250 or less. The cost usually can be reduced greatly by using material already on hand.

A long cabinet is constructed as shown in figure 1. Ordinary flooring may be used to construct the bottom, and either flooring or wall board for the sides and top. For convenience the openings are placed at the top of the cabinet. The suction holds the lids firmly in place. In practice it has been found unnecessary to use lid fasteners.

Materials for Cabinet.

The trays are stacked inside the cabinet, as shown in the cut. The drier here illustrated is designed for 100 trays, there being five compartments, each containing 20 trays arranged in tiers of 10. Details for the construction of the cabinet are shown in a closer view of the intake end in figure



1—Cabinet for Community Drier.

2—Details of Drying Tray.

2, cross section in figure 3, and side elevation in figure 4.

A list of materials for the construction of the cabinet follows:

2 pieces—2 in. by 4 in., 12 ft. long.
7 pieces—1 in. by 6 in. M. F. 18 ft. long
2 pieces—1 in. by 4 in., 16 ft. long.
4 pieces—1 in. by 4 in., 18 ft. long.
1 piece—1 in. by 4 in., 12 ft. long.
1 piece—1 in. by 3 in., 16 ft. long.
1 piece—1 in. by 2 in., 16 ft. long.
1 piece—1 in. by 2 in., 14 ft. long.
4 pieces—1 in. by 1½ in., 18 ft. long.
2 pieces—½ in. by 1 in., 10 ft. long.
2 pieces—½ in. by 1 in., 14 ft. long.
2 pieces—¼ in. by 1 in., 18 ft. long.
1 piece—¾ in. by Q. R., 18 ft. long.
1 piece—Wall board 48 in. by 49 ft.
Wire screen, 24 in. by 40 in., for intake end.
This bill for cabinet, without fan.

Trays for Drying.

The tray, 18 inches by 36 inches, shown in figure 2, has been found to be admirably adapted to community work. It holds about the quantity of material of one kind ordinarily brought by the family for drying. It is light and easily handled, the support across the top serving as a convenient means of lifting. These trays should be made of very light material, with wire screen bottoms and wire screen at one end, the other end being left open. The screened end prevents light material from being drawn through, while the open end permits free access of air and ease in emptying the trays. The screened end should always be turned toward the fan when suction is used.

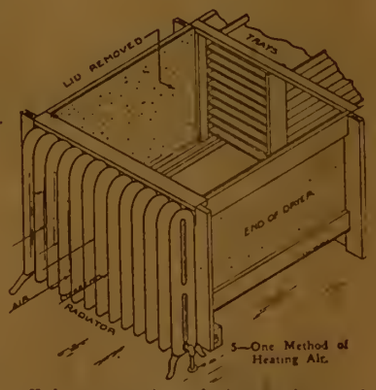
Following is a list of material for making 100 trays:

50 pieces—½ in. by 2 in., 12 ft. long.
38 pieces—½ in. by 1½ in., 12 ft. long.
50 yards wire screen, 26 inches wide

Most Important Factor—the Fan.

The wire-screen trays should be paraffined to prevent the sliced fruits and vegetables from sticking. This can be done easily by warming the wire and applying melted paraffin with a brush. If any of the paraffin fills the meshes they can be opened by holding over a stove until the paraffin melts and distributes itself over the wire. The paraffin prevents all possibility of discoloration of fruits and vegetables by coming in contact with the wires.

Any type of fan which moves a



5—One Method of Heating Air.

sufficient quantity of air can be used. Usually an old ensilage cutter blower fan or a separator fan used on a blower threshing machine can be found in the community and adapted to the exhaust end of the cabinet. One of the Nebraska plants has been fitted with a fan which had been discarded at a planing mill, having been used there for drawing sawdust and shavings from the planing machines. Another plant was fitted with an exhaust fan which had been used in a foundry for the removal of gases at the forges. Other plants are fitted with fans cost from $25 to $50. Suitable fans can be purchased from any of the fan manufacturing companies.

The main point to keep in mind in the selection of a fan is to get one that will move a sufficient quantity of air. The figures given are for a drier the size here described and give the rate of air movement when the cabinet contains no trays.

If the fan will move air fast enough for the suction to hold a piece of cardboard or other material 1 foot square and weighing 8 ounces against the wire screen at the intake end, the drying will proceed satisfactorily.

The most important feature to watch in the construction of a drying plant of this type is the fan. It should be simple in construction, easy of operation, and, above all things, large enough to move great quantities of air. When the 100 trays are filled with fruits and vegetables it is necessary to move the air rapidly to prevent souring and molding.

The fan may be operated by an electric motor of from 2 to 5 horsepower or by a gasoline engine of similar power.

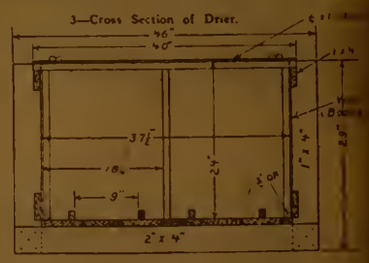
Heating the air in the room in which the drying is done will lower its humidity and facilitate the drying. If the temperature of the air is raised above 120 degrees Fahrenheit, however, some of the dried products may be discolored or the natural flavors may be changed. Therefore a heating device should be such that the temperature of the air will not be raised greatly. It should also be one which can be easily constructed from material found in the community.

The Use of Heat in Drying

A very effective method of heating the air is by the use of a hot water radiator placed at the intake end of the drier. The water in this radiator can be easily heated by means of a small hot water heater.

The air is drawn through the hot water radiator and in passing through becomes sufficiently heated to raise its temperature considerably, thus lowering the percentage of humidity.

The simplest method of raising the temperature of the air is by having the intake end of the drier in a room in which there is a stove. If this is not convenient a small room or compartment of sufficient size to contain



a stove can be constructed of cheap material, such as wall board. The stove should be within a few feet of the intake end. A good hot fire in the stove will do wonders in accelerating the drying on humid days. Caution should be observed to avoid conflagration in view of the strong draft flowing from the hot stove to the inflammable drier.

Preparation of Products

The fruit or vegetables should be cleaned as for table use. After cleaning they should be sliced thin. The slicing process may be hastened by the use of some slicing device, such as a rotary slicer. These slicers are similar to the bread slicers or dried beef slicers ordinarily used and cost from $2 to $10.

For the satisfactory use of this method of drying it is essential to slice all material thin, so that as many of the inner cells as possible will be exposed to the action of the air current. The sliced fruits or vegetables are spread over the wire-screen trays and the trays placed in the cabinet.

Certain vegetables or fruits will discolor unless specially treated. Apples usually turn dark when dried. This can be prevented by dipping the sliced apples in a solution of ordinary table salt and then placing immediately on the trays for drying. This solution can be made by using 2½ level teaspoonfuls of salt to a quart of water.

Irish potatoes will discolor somewhat and can not be satisfactorily dried by this method unless they are first cooked. They can be boiled until soft, then passed through a ricer or they can be sliced and then steamed thoroughly before placing on the trays.

For further particulars write to Prof. Charles W. Pugsley, 200 State street, Lincoln, Neb.

Staple food articles, such as sugar everyone eats, have advanced more than fifty per cent since July, 1914. Clothing has made an even greater advance.

How They Dry Pears in Lake County, California

By George P. Weldon,

Deputy State Commissioner of Horticulture, Sacramento, Cal.

Section That Leads the Coast in This Industry

THOUSANDS of tons of pears will be dried in California this season owing to the shortage of cars for the shipment of the green fruit. This article, written by George P. Weldon, Deputy State Horticultural Commissioner, gives an outline of the methods pursued by the Lake County pear growers. The pictures are reproduced by courtesy of Commissioner Hecke.

Any grower who wishes further information on this subject should write to G. H. Hecke, State Commissioner of Horticulture, Sacramento, Cal., for a copy of Fred G. Stokes' and John P. Swett's valuable bulletins on this subject.

THE dried pear industry has become exceedingly important in Lake County, where, during 1917, 3981 green tons were dried. While Lake County leads all other counties in the production of dried pears, the industry is by no means confined to this county. In Contra Costa, Solano, Napa, Sonoma and Mendocino counties there is always more or less fruit dried each season, while still other counties dry in small amounts.

Culling Pears From the Drying Trays

The great difference, however, between the industry in Lake County and all others where pears are dried lies in the fact that the Lake County orchards are remote from a railroad shipping point—30 miles or more—and consequently the entire output of certain fine orchards is dried, while in counties where transportation facilities are good the best pears are usually packed or sold to the canneries, and only the culls are dried.

Close View of Stacked Trays Containing Fruit in Process of Drying

Drying the Culls

In connection with the drying of culls it is unfortunate that too frequently the work is done with little care, and the extremely poor grade is often unfit for consumption, is dried under conditions that are not sanitary and a very poor product is the result.

On making a trip through some of the counties mentioned, the writer was impressed with the fine grade of dried fruit and it must be admitted [illegible] with the poor grade of other fruit which in the first place was half rotten and not fit to dry, and which, in the second place, was dried by Orientals in the [illegible] of all [illegible] a tendency to take all of [illegible] for dried [illegible]

[illegible] properly [illegible] prepared, is a fine product, and the kind that Lake County produces, when rightly cooked, compares favorably with any other kind of dried fruit, and were it not for the poorer class of fruit that is being treated in the manner described, the product, as a whole, would become much more popular. The market for dried pears could undoubtedly be increased greatly by the elimination of the poorer grades, or by a system of standardization whereby the product could be better graded, making it possible for the consumer to buy good pears even though at a much higher price, instead of the exceedingly poor trash that we are in the habit of seeing in our grocery stores, and which is anything but conducive to the sale of the product.

Europe has given us our market in the past and Europeans in America have consumed most of our dried pears. In order to educate the American people to eat this delicious fruit, it will be necessary to supply them with an article that is attractive and that they may know has been handled in a careful, sanitary manner.

Picking the Fruit

Pears for drying purposes are picked before ripe, and stored in bins or boxes for a week or ten days before cutting. They are picked by hand, although windfalls are utilized except portions that are too badly bruised.

To prevent bruising straw is sometimes spread under the trees, and the windfalls, as well as pears knocked off in picking are not liable to be injured.

The fruit when picked is placed in the ordinary picking boxes, and hauled to the drying yards, where it is culled and graded for size in some cases and in others is left until cut and drying upon the trays before culling is done.

The following facts regarding the details of the drying process in Lake County are gleaned mostly from an article by Fred G. Stokes, County Horticultural Commissioner of Lake County, who is a pear grower and who possesses a minute knowledge of the business gained throughout years of investigation and practical experience.

Cutting and Coring

For convenience the larger drying yards are equipped with small cars run on tracks located conveniently for hauling the fruit.

Large Pear-Drying Yard With Trays Containing Cut Pears Inclined Toward the Sun

The pears are carried in lug boxes by these cars to the cutting shed where the cutters, usually women of the neighborhood, are employed, and paid at the rate of ten cents for a 50-pound box.

The wages paid at this rate range from $2 to $3.50 per day.

The pear should be cut over-ripe in order that it may dry with the least possible shrinkage. The operation consists of cutting the fruit in half with a knife and removing the stem and calyx with a corer. If fruit is wormy or otherwise injured it may be be necessary to remove the core, otherwise it is left.

Milk pans are used as receptacles to hold the cut fruit. From these the halves are placed cut side up on the drying trays. These are purchased for about 50 cents each, are made preferably of pine, and the dimensions are as follows: 8 feet by 3 feet, or 8 feet by 30 inches.

Sulphuring Methods

Pears, like all others of our dried fruits, are bleached by means of sulphur fumes. This gives them a clear, more or less transparent appearance, greatly adding to their attractiveness and sale. In addition the sulphur gas acts as a sterilizing agent to prevent decay and as an insecticide or repellant to kill or drive away any insect life which might be present.

A type of concrete sulphur house used in Lake County is shown in an accompanying illustration. This house is roomy and suitable for work on a

(Continued on Page 10)

Balloon Hoods Used for Sulphuring Dried Fruit

Official Appreciation

Sacramento, Cal.,
June 18, 1918.

Editor Orchard and Farm:

I desire to express my appreciation of the co-operation which we have received from your paper and assure you that it is of very valuable assistance to the horticultural interests of the State.

Very sincerely yours,
G. H. HECKE,
State Commissioner of Horticulture.

Long-Distance Farming

Absentee Owners Have Many Difficulties

IT IS a common fancy of many city folks to think of the time when they can retire from the stress of city life and live in peace and plenty on a beautiful ranch. All kinds of fruits attract them, but orange groves are their particular fancy. Here in the Central California citrus district—thermal belt is a better term—absentee ownership is a common condition. In many sections it is almost the rule.

But it is a difficult task to run any business without being on hand to attend to it. It is still more difficult when the proprietor of the business knows little about that business, for city folks know little, as a rule, either about modern farming, or about farm standards of life.

These words of Professor Coit in his book on "Citrus Fruits" give an idea of the chance of failure in orange production: "Some persons make very large, almost fabulous, profits growing citrus fruit . . . Other persons lose money consistently year after year. . . . It appears that the average box of oranges for the five years preceding 1913 returned a net profit of 15 cents to the grower." Since most of the profits naturally go to the successful growers, this leaves the others to barely break even or to operate at a loss. "Absentee ownership," says Professor Coit, "is one of the banes of the citrus business."

A Shining Example

One of the shining examples of long distance farming known to the writer is that of a city friend, who purchased 320 acres of raw land in a northern California irrigation district. He had an orchard of almond trees set out and they made a fine growth until nearly every last one died of root knot, or crown gall, which was on the nursery stock when planted. The following year he had a large acreage in blackeye peas. When they were mature he had his doubts if it would pay to harvest them, but the foreman said that it surely would. Harvesting costs were about $500 and the crop in the sacks was worth about $120. That year the income was almost nothing, the expenses about $7000, to which could be added fire loss of $2000. His foreman once loaned his father-in-law some hired men from his absentee employer's ranch during a rush season, on the agreement that the father-in-law would pay back in labor when his rush season was over, which illustrates how the place was managed.

Then about a year ago the newspapers told of how the then foreman went into partnership with three other men to pick up on dark nights all the loose calves and other livestock available and sell them in another part of the county. Naturally the ranch in question suffered most of all. The foreman and his pals went to the penitentiary, but that probably did not make my friend's ranch any more profitable.

A neighbor who manages a ranch near here has owned an alfalfa ranch about ten miles distant for four years, but last year was the first time he ever made any money from it. First alfalfa was too low. Then he rented it to a man who was to get the crop in return for doing a lot of work. The man got the crop all right, but postponed doing the work on one excuse or another until fall and then quit without having done a dollar's worth of work for the owner. Now relatives are running it and doing well for both themselves and the owner, but he will probably give up a very fine and pleasant position as ranch manager to move on his own place after all.

There is a more or less common custom here of caring for a young orchard for a greater or less share of what can be taken off it. It is a very unsatisfactory system as a rule. The writer rents a place adjoining his own on that basis a year ago with probably a little unsatisfactory result on both sides. Under the best of conditions there are little permanent improvements, so to speak, that any place needs, but which a renter cannot afford to make. The only right system with a young orchard or other ranch which is to be worked upon for permanent improvement is to hire a caretaker by month and year, to work just as if he owned the property, and it is a hard proposition to get the right man.

Gave His Work Away

On the other hand this sometimes works well for a time. Not more than a thousand miles from here is a 40-acre ranch, part young orange orchard, part young vineyard and the rest alfalfa. At the beginning of 1917 the absentee owner tried to get some good man to take care of it for the crop, alfalfa and grapes going against the care of the orange orchard, but no one took him up, until by some wonderful chance he induced a man to take it for half the crop, and he took good enough care of it, too, though he practically gave his work away, but owner and lessee were continually quarreling over the bargain that was made.

The place was sold last winter. A new renter is supposed to get all the alfalfa for the care of the trees. The trees do not seem to like the bargain, but the alfalfa is doing exceptionally well.

And so it goes. There are a few ranches of absentee owners that are operated by men who are doing better than the owners themselves would do, but these are mainly run on the salary basis, and even that is not always a success. The contract plan of care for part of crop may be a partial success in a full producing orchard or alfalfa ranch, but crop for care seems to be a failure all the way through. Under any conditions the absentee owner seems to have a tough job.—D. J. Whitney, Exeter, Cal.

Pinto Bean Critics

WHEN in its April number Orchard and Farm began talking about pinto beans and their adaptability to the high and dry lands of the Pacific Coast the editor of this journal never dreamed of what he was starting.

That first story and the one that followed in the May number excited more attention among the foothill farmers of California and the whole Pacific slope than anything ever printed in these columns.

Last month there was a perfect deluge of inquiries about pinto beans. People wanted to know what they were like, what they were good for and what they would sell for if raised on this coast. Also a lot of farmers wanted to know where they could get pinto bean seed and how early or how late they might plant it and whether they were grown and cultivated like other beans.

Attacks on the Pinto

Some wise correspondents attacked the pinto bean and said there was nothing in it for the Pacific Coast rancher. They thought he might much better raise alfalfa or cucumbers or even Brussels sprouts.

That was all right. These critics didn't stop to remember that we never had given our unqualified endorsement to the pinto as something our coast farmers might make their everlasting fortunes in. All that Orchard and Farm had said was that the bean had been a howling success in New Mexico and Colorado and that it was worth trying out here.

Considering the fact that Uncle Sam had backed up the pinto and was anxious to see it grown more extensively as a dry farming product, Orchard and Farm thought it might be a pretty good thing to experiment with on the high lands of California and the other Pacific States.

A College View

Prof. G. W. Hendry of the Experiment Station of the University of California doesn't seem to think so. Mr. Hendry says that the chief difficulty in the way of pinto production is its low and uncertain market value. This may be true, but how did this little spotted bean come to add $4,000,000 to the wealth of New Mexico last year and nearly as much to that of Colorado if its market value was so low and uncertain? Mr. Hendry says that pinto bean production in California "has been insignificant compared to other varieties, amounting to only 50,000 pounds, or one carload, in 1917." Quite true. And that was one reason why Orchard and Farm suggested a bigger production.

What Hoover Says

Then there was the food value of the pinto. Wise guys attacked that, too. They wanted to know what was the good of producing something that nobody wanted to eat.

Well, here's what Herbert Hoover says on that point, and what's the good of anybody saying anything more?

"In food value the pinto practically is identical with the navy bean, but being more tender in flesh, it cooks more easily. In the total calories of fuel value per pound the pinto exceeds other beans, having 1695 units, compared to 1525 for the lima, and 1605 for the navy.

"Reports from the quartermasters of the Army and Navy show that colored beans are being used extensively by them and are meeting with great favor."

This ought to be enough for the critics, but of course they will keep up their gentle hammering. Meantime California is going ahead and raising a good-sized crop of pinto beans.

Two Tropic Tales

CHESTER H. ROWELL, [illegible] of the Fresno Republican, lately has been cruising in the tropics. He visited Samoa and made a pilgrimage to Vailima, where Robert Louis Stevenson lies buried. Mr. Rowell tells two tales that he heard during his stay at Samoa. Here is one of them:

There was once a high chief of Ilapai who at the age of [illegible] was nearing his end. All his relatives had long since been converted to Christianity, but the old chief stuck to the heathenism of his forefathers. So the family called the missionary and asked him to convert the patriarch that he might go to Heaven when he died. The missionary readily consented.

Trying to Convert Him

"Chief," he said, "you are old and must soon die."

"I know that," said the chief, "but I am ready."

"No, not ready," answered the missionary. "I have come at the request of all your tribe to convert you before you die."

"No," said the old chief, "many years I have lived as I am, and it is too late to change now."

"But you will go to hell."

"What sort of a place is hell?"

"It is a very hot place, and full of devils."

"That does not frighten me. I have lived in a hot place all my life, and the devils here have never troubled me much."

"But wouldn't you like to go to Heaven?"

"What sort of a place is that?"

"A very beautiful place, where the climate is always pleasant, where the angels play upon golden harps, where the streets are paved with gold."

The old man began to yield, but suddenly an idea struck him.

"You say there is such a place as that, and that I can go to it?" he asked.

"Certainly."

"And does the British Consul know about it?"

"To be sure."

"And the High Commissioner of Fiji?"

"Of course."

"And the British government?"

"Yes; they have always known it."

"Then," said the old chief firmly, "I know it is all a lie. If there were any such place, and the British [illegible] knew of it, Britain would have annexed it long ago." And he turned him over, to die unregenerate, in the faith of his fathers.

A Changeling Wife

The other story is [illegible] life of James Williams, [illegible] Savaii. He is a portly Irishman who for thirty years has lorded it [illegible] Savaii, the largest island of the Samoan group and the traditional [illegible] land of the Polynesian race. He [illegible] to have married twenty wives [illegible] the first twenty-one days of his residence on the island. It [illegible] his harem was ever [illegible] quite so prompt as that. [illegible] more authentic tragedy [illegible] marriages he does not [illegible] self. She was the [illegible] with large [illegible] [illegible] was really [illegible] he had himself [illegible] married by the [illegible] was a great [illegible] Williams [illegible] [illegible] to find his [illegible] bride, but [illegible] were [illegible] [illegible] bride had disappeared [illegible] [illegible] Williams was forced [illegible] himself with the [illegible] [illegible] the others.

The American's Creed

I BELIEVE in the United States of America as a government of the people, by the people, for the people, whose just powers are derived from the consent of the governed, a democracy in a republic; a sovereign Nation of many sovereign States; a perfect Union, one and inseparable, established upon those principles of freedom, equality, justice, and humanity for which American patriots sacrificed their lives and fortunes.

I therefore believe it is my duty to my country to love it, to support its Constitution, to obey its laws, to respect its flag and to defend it against all enemies.

Selling Tomatoes

WAR crops of tomatoes were contracted for early in the season and prices have ranged ...r cent higher than last year on ...g contracts.

...e ause the canners held out such ... bait for the growers, tomatoes ...e planted in many districts where ... never had been planted before ...he Imperial Valley growers who ... the earliest tomatoes to market ... realized good prices. Their ...ly crop was pretty well cleaned up ... the middle of the past month. ...hella Valley began shipping the ...t week in June

...here was a large increase in the ...age for canning in the San Fer...o Valley and also in San Diego ...nty

...he tomato worm did a great deal ...amage in San Joaquin Valley last ...r and for that reason many of the ...wers planted other crops this sea... Previously tomatoes were won...ul producers in those sections. A ...ber of fig men who had set out ...ng orchards intended to plant ...matoes between the rows, but were ...uaded from doing so on account ...he troublous worm.

Prices Are Good

During the middle and latter part ... last month tomatoes were selling S...n Francisco at $1.50 and $1.75 ... the Southern California prices ...e in the neighborhood of those ...res, tending a little lower at times. There is some complaint on the part ... Northern California growers who ...d failed to make contracts early in ... season that the canners are taking ...ntage of their position to bid ...gether too low for their crops. ...re is where the grower makes a ...take and it would be well for him ...ear it in mind for future seasons. ... must not wait too long before ...lking up with some reputable firm ...rly in the year or before he has ...ted his crop. If he makes a good ...tract he will have the satisfaction ...le while he is working in the field ...t he is not going to get left. Per...s his neighbor who waits and does ...t close with the canner may make ...ittle better bargain by so doing, ...t it is improbable that he will do ... three times out of five, and the ... chance goes to the man who is ...rehand with his contract.

Enormous Eastern Canning Crops

Our coast tomato growers and ...ners will be interested in learning ...t the government Bureau of Crop ...timates reports an enormous acre... of tomatoes for canning in the ...t and throughout the whole coun... Over 143,000 acres already have ... contracted for by the canners. ...a is going into the canning in...ry very strong this season, re...ing 30,348 acres contracted for as ...st 28,129 last year. Maryland ... New Jersey canning acreage will ...ut the same as last year, but ... whole there is an increase of ... 4 per cent although in some ... very little contracting has been ... the growers prefer to sell in ... market and depend upon the ... to take the surplus.
... refusing to contract at ... s they say there would be ... it for them.

... canning acreage already ... r amounts to 8513 as ... n. But this is ... the total tomato ... State ... produced ... tomatoes ... yield ... much ... t to

Why I Keep a Milch Goat

By A. S. Dunn
of Ontario, Cal.

JUST now the milk problem is one of the all-important questions for this country to solve. The Los Angeles "Examiner" of May 10, in a two-column editorial, sets forth forcefully the necessity of more milk for the growing children, which is falling off month by month instead of increasing.

The milch goat could be made to fill in the deficiency between the amount now produced and that required.

One goat will supply a family with good, sweet, wholesome milk, and at a price much less than would be charged by the milkman. The children thrive on it and adults will drink it with a greater relish than they will cows' milk.

The Goat Is No Joke

When goats are mentioned the average mind grasps the idea of the Harlem goat of the jokesmith, who has for ages educated the public in the belief that goats live on tin cans, old shoes and rubbish of all sorts, and smell to the heavens, while, in fact, the pure milch goat is odorless and the most dainty and cleanest feeder of all the animal world.

It is quite true they will thrive by brousing on the leaves and young twigs of trees and vines, but they will not touch food that has lain on the ground and been walked over or has been soiled in any way.

The amount of milk given by a goat is almost past belief by the person not familiar with the high-bred animal.

I have at home a 2-year-old doe that gives of milk more than her own weight every ten days. Your dairyman would charge you $14 for as much cows' milk as this goat gives in thirty days, and cows' milk in no measure compares with the milk of the goat in food value. I am informed the latter sells for twice as much as does the milk of cows.

Goats are not as susceptible to disease as cattle and have never been known to have tuberculosis, except when it has been contracted from cattle.

The cost of keeping a milch goat is very small, for one can keep eight mature goats on the ration that would feed one cow.

The annual sale of the kids will keep the doe in feed—the males for meat for the table and the females to be raised for milkers.

Care in Selection

One should be careful in the selection of a doe, as there is as wide a range in their milking qualities as there is in cows, and there are a lot of dealers who will palm off almost anything in the female goat line for a milker.

Unless they have proper breeding back of them they are apt to prove disappointing, as they soon go dry and are not worth their keep. On the other hand, a well-bred doe will give milk for months, and occasionally there is one like the one I have referred to that it is impossible to "dry up" before kidding time. The day before her kids were born she was still giving a quart at a milking—and every means had been tried for eight weeks to turn her dry.

Both the State and the nation have tried to spread the gospel of the goat, but it does not reach where it should. The farmers and the goat fanciers are about the only hands that the bulletins fall into.

Let the Goat's Worth Be Known

The farmer usually has room and plenty of feed for cattle, and the goat fancier has already supplied himself with goats, so that the propaganda has accomplished little.

There is nothing that would bring the matter more clearly before the attention of the public than a good film to be displayed in the theaters setting forth the goat as a source of milk supply—the different breeds, the care, etc.

I am a friend of all domestic animals, but if the dogs were eliminated and the milch goat installed in their stead a great many more children would be better fed. It would take no more to keep a doe than a dog, and they both need about the same amount of room.

The President has ordered sheep to feed on the White House lawn. Why not have a pocket cow to take care of the cottage lawn?

Sweet sorghums as silage have practically the same feeding value as Indian corn. The advantage of the sweet sorghums over Indian corn is the larger yield of the former.

How About Hay?

VARIOUS estimates of the hay crop of California this year would tend to make the feed situation look rather dubious, but it is pretty safe to say that the State will equal its total of 4,700,000 tons produced in 1917. In the Sacramento valley the wheat crop was not up to standard, owing to the lack of late spring rains, and a good many ranchers cut their wheat for hay before it matured. In the opinion of some statisticians this will add considerably to the total hay yield, but in reality the amount thus gained is not going to cut much figure.

There was some anxiety over the May rains as affecting the hay lying in the fields, but farmers have to have something to worry about, and this proved to be the least of their troubles when all was said and done.

The Food Administration is doing its best to trim the profits of the dealers, and it looks as though farmers were going to get fair prices for their product. Alfalfa has been selling at $18 to $20 a ton, but with the new crop coming in there may be a reduction of these figures. However, the government may be depended upon as a large buyer and Uncle Sam is not stingy when it comes to contracts.

In this as in other crops the bugaboo of commandeering—a word that has scared some producers—has not hurt very much when it came down to actual experience.

Cutting Wild Hay

One thing that ranchers are learning on this coast that is going to be of special value to the stockmen is that more wild hay can and should be cut for winter feeding. California is a very small producer of wild hay, although there is an abundance of it throughout the State and particularly in the foothill districts. Last year this State cut only 259,000 tons of wild hay. It could just as well have been a million tons, and the livestock men are now admitting this sad truth. The lack of early rains held the ranges back so long that the cattle owners became frightened. This year many of them are seeing to it that wild feed is cut and stored to tide over any drought that may come.

There is a vast acreage of young fruit orchards in California and Oregon and in these districts a good deal of hay has been raised as an intercrop—a very good plan if it is cut high and the stubble turned under to make humus.

There Will Be a Good Market

The temptation of high prices has helped the hay acreage, but on the other hand the reduction in stock production has given the hay rancher another cause of worriment. Some of them have been asking, "Who is going to buy and feed all this hay?" Let them not fear. There is going to be a good market for every ton of it.

In fact, what has been said of hay will apply to nearly every staple crop on the coast.

The total acreage of hay in the United States is exceeded only by that of corn, is nearly double that of wheat and two and one-half times that of cotton.

California is producing about $20,000,000 worth of gold a year, but her hay crop of 4,700,000 tons was worth a great deal more than that last season, in fact over six times as much. All the mineral wealth mined each year in the United States does not amount in value to one-tenth of the hay crop.

Through livestock feed and the resultant manure it puts back into the soil millions of wealth, while gold and silver put back nothing.

Process of Pear Drying

(Continued from Page 7)

Concrete Houses for Sulphuring Dried Pears

large scale. The tracks referred to previously may be seen running into this house, and a car upon which are trays of fruit ready to be unloaded and sulphured may be seen also. Another cut shows the ordinary type of balloon hood that is effectively used by many of the pear dryers. They have the advantage of being cheaper than the concrete houses.

These hoods consist of a light wooden framework, covered with two or three-ply roofing paper. The long row of hoods is raised from and placed over the trays by means of a block and tackle on a suitable running gear above. Thus one table may perform the work of many hoods.

Cooking Dried Pears

Dried pears have not yet become popular in this country and it has been necessary to depend on a European market. Like other dried fruits they must be cooked properly to bring out the flavor. With proper cooking there is no more delicious dried fruit than pears. The following recipe is worthy of trial by every housewife who discounts the value of this delicious fruit:

"Wash the fruit clean and simmer for half an hour. By that time the pears will have swollen to almost original size, but will not have softened so as to fall to pieces. If you keep them stewing they will become too soft. Take the pears out; lay them in a shallow dish or pan, strain the water back over them, sprinkle them with sugar, flavor if you wish with spice to taste, and bake fifteen minutes. They will come out of the oven nicely baked, with the sugar crystallized on the surface. Serve with cream and you have a dish that everybody enjoys. Dried pears, according to analysis, are one of the most nutritious of fruits, and at the same price per pound have a greater food value than dried apples."

Flake the Surplus Potatoes

By Dr. H. E. Horton

THE industrial side of the potato industry has not been neglected. The war has furnished markets which must not be given up for potato flour, dried chips and the dried chips in soup stocks.

Potato producing districts are awakening to the meaning the industrial uses of the potato have in stabilizing prices of potatoes, in the development of communities and the enhancement of land values.

The potato is composed of starch, cellulose, nitrogenous substance and mineral matter. When the potato is worked for starch, starch is obtained and the cellulose, nitrogenous substance and mineral matter are lost. When the potato is worked properly for flakes, there is obtained a product containing starch, cellulose, nitrogenous substance and mineral matter—a valuable food.

Potato Flakes Keep for Years

There is a disposition to exploit potato starch as potato flour, and if this course is persisted in the result will be to the detriment of the increased use of the potato as a human food. Potato flour contains nitrogenous substance and mineral matter of food value, while potato starch does not contain these substances in the same quantity.

There are two kinds of potato flour: the one made of cooked potatoes and the other from uncooked potatoes. Flour made from flakes is the cooked product, while the flour made from milling sliced and dried potatoes is the uncooked product.

Another form of dried potato is riced potato, which is made from the cooked potato. A high quality potato flour is made by milling potato flakes. The potato flake will keep in good condition for years if put up in proper containers. The flakes may be stored in bulk, five to six feet deep, over long periods, when used for cattle feed.

In our judgment, the potato flake is the most practical form of dried potato. The apparatus and machinery for its manufacture are simple and easily operated.

Many business men have wanted to do something to help out our food production, and the potato flake appealed to many of them. Unfortunately, the several types of flakers are of European origin and not available for use in this country.

At this time it is our great pleasure to advise our friends that a flaker machine is now available in our country and it should not be difficult to make its production a war measure and to place many machines in the potato growing sections of the country and in the big potato markets in our cities.

Process of Flake Making

At the present time, and under great necessity, there is room for many manner of drying processes, but the moment peace returns it will be the right process that shall continue in business, grow in importance and become the good investment. We believe there is a bright future for the right process of drying potatoes.

It would seem hardly necessary (as we have reason to know it is necessary) to say machinery and apparatus should be installed and set in operation by expert mechanics. Moreover, machinery calls for careful handling.

It is often difficult to procure a satisfactory stand of potatoes when planting during the extreme heat. This may be largely overcome by covering the seed properly, and irrigating twice just previous to planting.

In Central California, the seed should be planted between July 7 and August 1; in Southern California from July 1 to August 10.

Under ordinary conditions the crop will be ready to harvest during November, but should not be dug until the plants have fully matured.

A San Joaquin Success Story

What an Iowan Did in Stanislaus County

A GOOD many little success stories are coming from the fertile San Joaquin Valley. Some of them are about newcomers from the middle west who are making good there in a very satisfactory way. One of these reports concerns a young man named Claud Wood, who is this year running the Wood home place near Hughson, under a co-operative arrangement with his father, C. F. Wood. Claud was a ranch-raised lad, but that was back in Iowa, and when Mr. Wood, senior, moved his family to the San Joaquin Valley Claud took to the city like a duck to water, and for nearly ten years was connected with the Hume Canning Company at Turlock. But, after this long spell of city dwelling, he recently got back into his old stride and is starting out like a sure winner.

The past year was a most successful one for Mr. Wood, senior, and, desiring to have his family live in town and for a time enjoy a life not quite so strenuous as the farm entails, he arranged with Claud to move his family to the fruit farm and take up the more active responsibilities of running the place. The city was so strong with Claud, and the prospects so bright, in order to get back to the farm he had to refuse two different offers that would have paid him $150 a month. But Claud is making good in a highly satisfactory way.

It was nearly ten years ago when F. C. Wood disposed of a portion of his Iowa farm and came to this district, buying the place near Hughson, which contained thirty-eight acres and which was at that time just coming into bearing. There were some lean years to follow, and it took nerve to stay with it. That was before the day of the co-operative organizations when the fruit grower received mighty small prices.

Mr. Wood cites an instance, a few years ago, when he shipped thirty boxes of his best peaches to Oakland, after much care and expense in gathering, wrapping, and boxing, and received in return fourteen cents in postage stamps as the net result of the sale. But that was before the fruit growers got together and arranged by co-operation to control the distribution and sale of their products.

In contrast with such disheartening conditions as existed in those days, it may be mentioned that Mr. Wood received last year $1600 for the fruit from his two acres of apricots, and nearly $6000 from the entire place, which includes the two acres of apricots, about sixteen acres in peaches, a few acres in grapes and miscellaneous other fruits and nuts, and the remainder in alfalfa.

Until this year he used horses in cultivating the place, but finding that he would necessarily have to put in an auxiliary irrigating plant, he disposed of the horses and purchased a small tractor, which he is using with most gratifying results. He says it is more satisfactory and cheaper in every way. Horses eat their heads off when not working, but when the tractor is not in use, the expense ceases. The tractor is a general utility animal, serves many purposes on the ranch and will do most anything except make the hens lay and milk the cows. The cost of the tractor was about what Wood received for the three horses and the expense of operation is considerably less than the worth of the feed for the three animals.

Enlist as a Farm Soldier!

Send Your Name and Address to This Office.

SEVEN hundred and fifty thousand new farm workers are needed in this country to increase the war emergency food supply.

Do you need work? Will you be willing to help in this grand movement by which our war crops will be cultivated and harvested?

What are you doing now?

Are you one of that class that is loafing about the poolrooms holding up the store fronts and patronizing the free lunch counters?

Let us hope that you are not. But if you are here is a way to redeem yourself and show that you are a man:

Enroll on the Orchard and Farm list of men who are willing to devote themselves to public service by work upon the farms.

Or it may be that you are of that ever-industrious class who want to help win the war and don't exactly know how to do it. Orchard and Farm presents a way: Enroll as a farm worker.

Perhaps you wanted to enlist in the army or navy and were not accepted, but are able to do your day's work in orchard or field. Enroll!

Or it may be that you were formerly engaged in agriculture and are now willing to do something to help out crop production temporarily. Enroll!

Sign the following and send it to Orchard and Farm, Examiner Building, Los Angeles, immediately:

I wish to enlist in the army of farm laborers for the present war emergency. I shall expect wages at the rate of $.....a day during the period of my employment which will be ..... months.

Name .....

Address .....

Are You Practicing System on Your Little Old Ranch?

Here Are Some Very Helpful Ideas

Cutting Down Expenses

ONE thing I am convinced, after several years of ranching, and that is that you will never know how to cut down your expenses unless you keep a very close inventory of everything on the place. In my inventory there are five divisions. First ... list of all real estate—land, ...rns, silos, pig pens, chicken ... as well as water and lighting ... Second, there is livestock, ...ing every calf and every pig. ..., equipment, including ma...ry, harness, automobile, tractor, ... and miscellaneous articles. ...th, there is a memorandum of ...upplies and miscellaneous items ...ng under that heading. Fifth is ... of all crops remaining on the ... unsold If land has gone up ... I bought it, the new price is ...d. The difference between the ...nd the old price is set down as ...fit on the investment. This is in ...ion to the price of the products ... land. I try to be very con...tive in figuring my increased ... prices.

... the matter of livestock you can ...ve yourself, too. Suppose you ... a bull for $500 in 1917. In the ...nventory the question comes up, ... much shall that bull be entered ... Now take it that that bull, be... of the good records of his ...ny, has increased in value to ...—that is, we would not sell him ...ss than that figure. Then we ...stified in entering him at $1500 ... can credit ourselves with having ... $1000 by his purchase.

... to farm crops, there is little fear ...ver-estimating them. It seems ...e that it is fair to put them down ...ng prices, and I always do so. ...i...es, however, the prices actu...alized a little later are disap...g. There may be damaged hay ...rain. Even milk is sometimes ...rough carelessness on the part ...vers or through leaky cans.

...h me livestock always shows ...rable gain in price, for I am ...tly getting better blood.

...hinery, unless very carefully at... to, will always show a loss, ... generally does anyway. You ...ot say that a harness was ... as much two years after its ...e as on the day you bought it, ... any piece of machinery. It ... doing just as good service, but ...ould make a deduction, for it ... second-hand material after all.

...p an itemized account of all ...ceipts and also of expenses. ... and expenditures are entered ...e pages for the sake of easy ...on. There are eight columns ...nditures. First, improve... ...achinery and equipment. ... livestock. Third, labor. ... feed and bedding. Fifth, ... supplies. Sixth, repairs. ... assessments and office ex... ...ighth, miscellaneous. Re... ...bvious affairs and easily ...rding to the nature of ...ndustry. It is the expense ...t you have to study, and ... these very carefully at ...nts you will easily see ...y be reduced here and ... example, tractor expense ... item with me. I studied ...t be cut down and found ...t many cases where the ...n sent to a garage to ... I might just as well have ...myself. Once I got an ... it would cost to ...l the machine. The ... I saved that amount ...rk myself with the ...t ma..., and I am ... a good job.

... expenses. The ...ve the figures ... to a clearer ... came to ... w... less ...po...—

How to Keep Up Your Credit

I AM an old California rancher and it makes me tired to see how some of these younger men allow their credit to go to pieces. Without credit, as David Lubin said in a recent Orchard and Farm article, the farmer doesn't amount to much. Mr. Lubin's idea of open account credits for farmers at country banks is a good one—that is, it would be all right for conservative men, but it might be taken advantage of by a lot of the reckless ones I know.

Right in my neighborhood are men who borrow money from the bank, knowing well enough that they will not be able to pay up when the note falls due. Then they curse the bank if there is a foreclosure.

I established credit at our town bank by always putting any extra money I might have in it instead of paying out the money in cash. I checked against my deposits to pay bills. My banker thus came to know me well and to look upon me as an asset. The loans I applied for at that bank were never large ones. If I thought of borrowing $2000, I cut it down to $1200 or $1500 and pegged along on that. I am not one of the men who borrow themselves rich. Nearly all of my notes have been drawn for six months or one year. Sometimes they were paid in installments, but more generally before maturity and in full.

I am more frank with my banker than most ranchers are. I ask his advice and take him into my confidence. He is never hazy about what I am going to spend the money for. He feels a sort of partnership in my business. I have made money on loans. Once a ninety-day loan of $350 allowed me a profit of the same amount in seed barley. Another of $300 for the same time netted me over $300 on seed wheat. Again I made $700 by a loan of $1200 on hogs. That's the way Wall Street men make money. Why can't farmers make it in the same way? Well, they can if they keep their credit good. And the only way to keep up credit is to pay up promptly.—W. E. R., Selma, Cal.

How I Checked Seepage

AT THE end of 1916 the seep water was within 2½ feet of the top on my farm. Two or three of the trees in my young orchard were beginning to die, and I was getting scared. I had always thought that it was the water I was putting on myself that was the main cause for the rise of the seep water, so I put down two wells, one on the lowest and the other on the highest part of my farm, so I could look down and see what I was doing when I irrigated.

I then cut my runs in three and used big heads of water to get it over in a hurry. Watching my wells after irrigation, I learned that if I could get the water across a table in two hours or less, the seep water didn't rise. If I took a longer time than that, up would come the seep water, sometimes as much as a foot rise for an irrigation.

I irrigate my alfalfa now just half as often as I used to. I know I could cut a little more alfalfa if I irrigated it oftener, but not as much more as you might expect; and I know in the long run I am making far more, because I am saving my farm.

As I said, at the end of 1916 the seep water was 2½ feet from the top. Today it stands from 6 to 7 feet below the surface.

I had one field in new alfalfa. After the first irrigation last year the seep water came right up to the top. I didn't irrigate it again until June. By that time the seep water was a foot below. I didn't irrigate that alfalfa again until September. Today the seep water is 6 feet below the surface on that field.

A tenant farmer had a corn field adjoining me that he irrigated constantly, and he forced the seep water up on me from his over-irrigations. I rented the field myself last year to get rid of his flooding. I planted the field in corn. I irrigated it before the seed was put in, and then I irrigated it again when the corn was beginning to tassel. That was all—two irrigations—and I had as good corn as anyone, and what was more important, I stopped the seep water coming up on my farm from that side.—E. C. Crapps, Picacho, N. M.

We Want New Farming Facts

ORCHARD AND FARM asks you to send in little stories of experiments you have made in farm work that proved of value to you, and also accounts of unsuccessful experiments that would be a guide for others.

We want Orchard and Farm to be a meeting place of the farmers of the Pacific Coast, where they can exchange experiences and profit by such exchange. Practical farmers everywhere are continually devising some new wrinkle as to cultivation, or irrigation, or fertilization, as well as schemes as to livestock raising. A practical farmer's ingenuity frequently results in the production of an idea of practice as valuable as that evolved by a professor of agriculture.

All of these communications will be saved. The best will be printed, and at the end of a year a committee will pass upon them. This committee will be from the California College of Agriculture, as follows:

John W. Gilmore, Division of Farm Management.
Gordon H. True, Division of Animal Husbandry.
C. L. Roadhouse, Dairy Industry Division.
J. E. Dougherty, Poultry Division.
W. L. Howard, Division of Pomology.
Frederic T. Bioletti, Division of Viticulture.
Frank Adams, Irrigation Division.
H. J. Webber, Director Citrus Experiment Station, Riverside, Cal.

The communication that is regarded by the committee as having proved of the most value will be awarded a prize of $50. The one second in value will receive a prize of $25. The third in value will receive a prize of $15. The fourth, $10, and the fifth in value, $5.

Write to Orchard and Farm as briefly and as clearly as possible, so that there can be no mistake as to your meaning about the original thing you have developed that you regard as having been of the greatest value to you and your farm.

Economy in Horse Feeding

LAST year the writer saved probably $60 to $75 in feed and a good deal of trouble besides, by fencing a twenty-acre pasture adjoining his place on two sides. The pasture was poor naturally; furthermore it had been run over early in the season by cattle. The costs were approximately as follows: Rent $5 per year, it being rented under the condition that lease be relinquished whenever owner desired to sell or improve; barbed wire, three rolls at $6 per roll, $18. This was only half the wire that would have been needed to put up a two-wire fence, but there was already a fence along one long side and a roll was available on the place already. Posts were put about 55 or 60 feet apart, as only horses were to be kept in the field. Cottonwood posts and braces were purchased along the river for 5 cents apiece, total cost being $2.50 plus hauling. Then grape stakes were bought to drive between posts, two in each panel, costing $4.50. As a matter of fact the ground got too hard to drive the stakes, so only a few of them were used after all.

There we kept in this field a couple of colts up until late fall—till the first of the year, in fact, and always some idle work stock, and they kept growing and in good condition. The actual saving of hay was hard to estimate, but it was large. For example, a team at work and kept in the barn on hay made a big hole in a stack in several weeks.

It seems about like this: A horse to live needs so many pounds of nutriment like starch, sugar and protein. He can get it in poor feed, like poor pasture, or he can get it in good feed like hay. If he gets it in poor feed, he has to eat three or four times the bulk that would be required of rich feed, but he gets the nourishment all right if he has nothing to do except roam around and eat. On the other hand, if he has to work, he needs far more actual nourishment, so must eat a good deal more than when he is not working, and his bodily force has to go to muscular work, instead of to digestive work; therefore he must have strong feed or he will run down. Therefore, when a horse can be turned out on pasture, if only for a couple of days a week, he can do well on feed it would be impossible to work him upon. So, whenever there is a vacant field where the volunteer hay is too poor to cut—and that goes on most fields around here—it is very probable that in a single season a fence would pay for itself if prices were high, as they now are.

Near by, for example, is a 17-acre field, with fine wild oats, too short to cut and rake. Owing to fences now standing 1750 feet of fence would fix it and drinking water is easily available. Wire for a two strand fence would cost at $6.45 per 100 pounds $19.35; split redwood posts, 40 feet apart, at 24 cents a post, about $11.00, grape stakes to drive, two per panel, at 6 cents a stake, $4.80; labor, $12, which may be a poor estimate, or a total of $46, or say $50 for round numbers.

There are on the place four horses, two of which are used only about a quarter of the time, the others could be on pasture about three nights and two days per week. Likewise the feed is rich enough to work horses on for quite a time. At the same time hay costs $22 per ton delivered in barn and in two months and a half the saving in feed would pay for the fence, the pasture would be available for the rest of the year and until place was improved and planted to fruit or vines, and then wire could be sold and posts used in vineyard, or sold also. Or even if there were no horses to be put on it, the demand for pasture for colts, young stock, or stock not working is such that the pasture would pay for the fence before the year was out.—D. J. W., Exeter, Cal.

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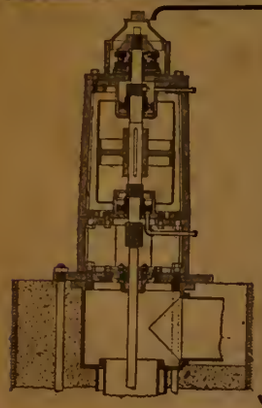

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GEO. A. COLLINS, Secretary.

Overhead Orange Irrigation

Success of Plant Near Covina, Cal.

MOST of our orange growers have heard of the overhead irrigation system employed by David J. Overholtzer in his ten-acre grove near Covina, Cal.—the only plant of the kind on this coast—but what they have not heard is how it is operated successfully and what it is saving in labor and expense.

"Is it better than ground irrigation?" asked the editor of Orchard and Farm on a recent visit to the beautiful grove, with its glistening leaves and the big round Valencias hanging full and ripe from its healthy-looking trees.

"Well, I like it," was Mr. Overholtzer's reply. "You judge."

But of course the visitor could not judge, and the citrus man went on to tell of his experience with the plant which, after all, is the best proof of its merits.

Before these matters are gone into more fully it may be stated that Mr. Overholtzer is a Dunkard and, therefore, averse to war, but he is also a Kaiser-hater and believes that the only way to secure peace is to crush Prussianism.

What the Plant Is Like

His overhead irrigation system was established in January, 1913, so that there has been ample time to test its adaptability to a California orange grove. The plant consists of 7920 feet of galvanized pipe, ranging from three-quarter inch to one and one-quarter inch in size. This pipe is punctured with holes every three feet and there are nipples in the holes. It is supported by two and one-half inch standing pipes and from cables stretched across from one pipe to the other.

The lateral irrigation pipes are 16 feet above the ground and are so attached to the uprights that they may be raised or lowered quite handily.

The cost of the system was about $2000, including the labor of setting it up. It would probably cost nearly double that amount at the present time, as all metals have advanced tremendously owing to the war. It would therefore hardly be practicable for present installation, but it is well to note its utility as bearing upon future plans of irrigation in citrus orchards.

Mr. Overholtzer had previously installed a good system of surface irrigation, with cement pipes. As he has a well of large capacity and a good pumping plant, he is well provided in case of a failure of his pipe-line system. But it never has failed him and is not likely to fail.

Splendid Results in June Drop

The most interesting question that could be asked about the overhead system is, how did it work last season in relation to June drop?

Well, that is readily answered. While the hot wave was doing its deadly work upon all the citrus groves in the San Gabriel Valley, and [illegible] thing that the orchardists could [illegible] of was being done to offset it [illegible] Mr. Overholtzer's orange tre[illegible] receiving the benefit of a d[illegible] of artificial rain from pipes t[illegible] spurting water all over the [illegible] down the trunks.

All around in the [illegible] groves the little green ora[illegible] tumbling to the ground. Drop [illegible] drop! But the Overholtzer [illegible] hung on; that is, the gre[illegible] of them, the amount of m[illegible] thrown upon them and the [illegible] up of the water from the [illegible] helping them to resist the effe[illegible] the excessive heat, which ra[illegible] 100 to 120 degrees.

Result: The Overholtzer orc[illegible] yielded 100 per cent of Valenci[illegible] 55 per cent of navels. In the re[illegible] the San Gabriel Valley and [illegible] larly in the neighborhood of Co[illegible] the crop was: Valencias, 50 per [illegible] navels, 15 per cent. In some [illegible] the drop came down to 5 per ce[illegible] navels and 30 per cent for Valen[illegible]

Good for Frost, Too

That was a pretty good test [illegible] merits of the overhead irrig[illegible] tem for citrus fruits. But it was [illegible] all. At another time when the [illegible] bors got the frost warning and [illegible] were out all night in their or[illegible] smudging their trees, Overh[illegible] simply turned on the water and [illegible] to bed. His crop was saved [illegible] only damage done was by the [illegible] ing of limbs by the weight of th[illegible] formed when the water c[illegible] big icicles hanging from th[illegible] The oranges, though covered [illegible] ice, were not, however, froste[illegible] were marketed in good condition.

The system is a great labor [illegible] While other citrus growers ar[illegible] boriously preparing their land [illegible] rigation, Mr. Overholtzer can tu[illegible] his water, get into his autom[illegible] take a run over to town. The [illegible] is more evenly applied and th[illegible] in better condition for cultivati[illegible] where the surface system is u[illegible]

Helps in Fertilizing

Soluble salts as fertilizers are [illegible] ily applied by introducing th[illegible] the water, and as they de[illegible] the artificial rain, their distr[illegible] more effective. At least this [illegible] Overholtzer's theory, and he [illegible] watching the results pretty cl[illegible]

The lateral pipes above the [illegible] are placed between alternate [illegible] and may be turned so that the [illegible] may spurt at different angles—[illegible] over the tree and down on the [illegible] side or down over and thro[illegible] top on the side nearest the p[illegible]

The water is turned on all a[illegible] and it issues in even volume [illegible] the orchard. The quantity [illegible] one average irrigation is 37[illegible] and it runs steadily for 36 [illegible] hours.

Save Orchard and Farm's Best Articles

ORCHARD AND FARM suggests that its readers who see s[illegible] particularly interesting articles in its columns should clip th[illegible] out and file them away.

Articles of intense interest relative to successful experiments [illegible] lines of husbandry appear in this publication. For purposes of r[illegible] reference, some of our readers clip these articles out, and in the c[illegible] of time have amassed under the various subdivisions a vast f[illegible] information of the utmost value.

If they trust to memory, they forget the issue in which the a[illegible] appeared and to find it have to search through many copies.

Big Cantaloupe Crops

PLENTY of cantaloupes this season! J. W. McClymonds, vice president and general manager of the Pacific Fruit Express, expects a bumper crop of 5000 cars of cantaloupes from the Imperial Valley.

Few people realize what it means to handle the cantaloupe crop from the Imperial Valley. If the cantaloupes were placed in 40 car trains it would take 125 solid trains to handle this crop. If the 5000 cars were placed in one solid train it would cover a distance of 40 miles.

There are 336 crates of cantaloupes to the car, or 1,680,000 crates, 45 cantaloupes to the crate, which means that there will be shipped from the Imperial Valley this season 75,600,000 cantaloupes. A standard crate weighs 68 pounds which will mean that the entire crop will weigh 114,240,000 pounds.

Refrigerator cars are used to handle this, California's most highly perishable crop. It is necessary to initially ice; that is, fill up ice tanks, and reice each car before moving it from loading stations. This takes eight tons per car, or a total of 80,000,000 pounds.

It is hard to imagine this amount of ice. As an illustration, if your ice man were to deliver this ice to you at the rate of 25 pounds per day, it would take 3,200,000 days, or 8767 years.

The first carload of cantaloupes from Imperial Valley was shipped May 25th, just 11 days earlier than last year's first carload, which moved on June 4th.

The cantaloupe situation in the Turlock, Ripon and Livingston districts indicates that there are approximately 3950 acres planted in cantaloupes this year which should produce in the neighborhood of 2500 cars of cantaloupes. This is far in excess of last year's shipments. Movement should commence between the middle and latter part of July.

Pinto Bean Gains Ground

THE prospects for a bean market in 1918 are much better than they were in 1917. The Allies have just placed an order for 400 cars, or 32,000,000 pounds of United States beans. The United States Food Administration is filling 4,000,000 pounds of this order with Colorado pintos, making the first shipment of pintos. The British government after extensive tests, is buying both canned and dry pintos for the army supply.

The Colorado pinto is taking hold in Boston, the home of baked beans. The city of Boston has placed an order for 50 carloads, or 4,000,000 pounds of Colorado pintos. This movement of Colorado beans into territory previously owned by the white bean gives much promise of a good future market. It is too early to expect enormous prices, but the prices on any acreage that we are likely to produce are practically assured.—Alvin Kezer.

Top Price for Kern Oranges

NAVEL oranges, grown in the Edison district of Kern county, Cal., brought $6.15 per box at ... early in 1918. This ... price for navel oranges ... record of twenty-seven ... district was planted ... the trees only recently ... full bearing ... oranges ... have been scoring ... fruit

... of the ... its

How to Kill Potato Beetles

KILL the potato beetle. The adult insects winter in the soil and emerge in the spring about the time the potatoes come up. The insects soon deposit eggs on the plants and the young yellowish colored slugs are also found feeding on the potato foliage early in the spring. T. J. Talbert of the University of Missouri College of Agriculture has found that spraying with arsenate of lead will control the pests.

The first spraying should be given when the plants are from four to six inches high, or earlier, if the beetles appear. As a rule, only two or three sprays are needed. They should be applied at intervals of about two weeks apart.

In small quantities, the arsenate of lead spraying solution may be made by mixing one tablespoonful of powdered arsenate in one gallon of water. If the arsenate of lead is used in the paste form, mix two tablespoonfuls in one gallon of water. Keep the mixture well stirred while spraying to secure an even distribution of the poison on the plants. The liquid spray may be applied effectively with a small hand atomizer, compressed air sprayer, knapsack sprayer, bucket pump sprayer, and other kinds of spraying equipment.

A dust spray is also effective. This may be made by mixing one tablespoonful of powdered arsenate of lead with three or four tablespoonfuls of air slaked lime or fine dust from the road. A sifter of some sort should be used in making the dust spray. This may consist of a tin can in which a few holes have been punched with a small nail, an old pepper can, talcum powder can, or a cheese cloth bag. For best results the dust spray should be applied while the plants are wet with dew. In all spraying operations it is important that the infested plants be thoroughly covered by the poison mixture.

For spraying more extensive areas it would be advisable to use poisoned bordeaux mixture, which consists of four pounds of stone lime, four pounds of blue vitriol to fifty gallons of water. To this should be added four pounds of arsenate of lead paste or two pounds of the powdered arsenate of lead. This is an important spray for the control of potato diseases and insects, and should be applied at least two or three times during the growing season.

Left-Over Oranges

IN picking oranges it is very difficult to keep from overlooking a few. These, in the early districts particularly, where fruit is picked before it reaches its highest excellence, are delicious a few months later and it will well repay a man to go carefully over an orchard to gather all that are left. The flesh of naturally good fruit at that time is soft, crisp, highly flavored, and will melt in one's mouth.

An added reason for removing such fruit is to protect the trees. In process of time the fruit will drop off itself and all fruits except those close to the ground have a chance of catching on branches and remaining until they rot.

Whenever an orange rests against a branch and rots it nearly always softens and rots the bark it rests upon and injuries the tree It is considered worth while for the sake of the tree to go over the orchard removing overlooked oranges about the time that they are dropping of their own accord. Since the oranges are of particular value just at that time also, there is a double reason for having them picked.

The Kaiser has an ally in every sheep killing dog in America.

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A Handy Tractor

A FEW minutes in the seat of an **International 8-16** gives you a new idea of the ease and comfort of doing farm work with a kerosene tractor. All the controls are right at hand — spark and throttle controls just under the steering wheel; clutch and brake operated by foot pedals; speed changing levers just where your hand falls on them — everything as handy as on an automobile.

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You will like this tractor when you see it. When you run it you will like it better. When you find out how light your bills are for kerosene and for general upkeep you will like it best of all. Go to the dealer soon and see it or write us for information because it looks as though the demand for **International 8-16** tractors is going to be much heavier than we expected and we shall have to fill orders in their turn.

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A tank, 5x2, $9; a tank, 7.4x4, 1000 gal., $23; a tank, 8x5, 1500 gal., $31; a tank, 5x4, 500 gal., $18. Tanks in stock up to 10,000 gallons. Thirty-five years in this business in Stockton. Try my improved non-shrinkable tank. References, Farmers' and Merchants' Bank, Stockton. I cut out the agent. Phone 2957.

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Junior Mill Capacity 600 to to 900 lbs. meal per hour 6 to 8 h. p. engine. Channel Strips for ... Ear Corn.

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Thousands are filling their Silos quicker! easier! cheaper! — with richer, better cut ensilage than ever! With the famous patented Recutting Attachment, they're making dandy feeds, turning roughage into tempting meal, fattening hogs, cattle, sheep, poultry, at a 15% to 80% cost-reduction! Think of it!

Makes wonderful combination meal-feeds from clover, corn stalks, snapped corn, bean straw, pea vines, oats, rye—Cracks peas, corn, beans! — Handles leaves, stem and all! Saves waste — doesn't injure color of hay!

Meal capacities range from 1080 to 2340 lbs. per hour (600 to 900 lbs. meal per hour with *Junior Mill* driven by 6 to 8 h. p. engine).

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Smalley Silo Filler Seven Sizes

Makes silo filling as easy as A B C! Grip-hook Force-feed TABLE and paddle roller automatically feeds the powerful, swiftly revolving, lawn-mower-like knives!—turns out fine cut ensilage of unbeatable richness—increases silo tonnage—pays for itself quickly. Patented low-speed ... pulley CHAIN DRIVE Blower. Saves 1-5 to 1-4 power ... Ends belt slippage, belt troubles—faster, cleaner—saves time, money, trouble. ... lower and cutter ... independently. Speed up fan—or slow it down!—Speed of knife shaft ... the same. Four sizes of All-... cut ... with top apron. Book ... all. It's FREE with samples of meal. Write Pacific Implement Co., Gen. Agents San Francisco, Cal.

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Sacramento California.

Why Maine Potatoes Are Best

By H. E. Boothby.

MR. BOOTHBY is a Maine potato grower and in this article written for Orchard and Farm he tells why that State grows such wonderful crops of the best potatoes in the American market. The Pacific Coast farmers would do well to read and heed what Mr. Boothby says.—Editor's Note.

MAINE is one of the greatest potato-growing sections in the United States. The number of bushels grown per acre and the average net return per acre are so much greater than can be secured in most other sections that farmers elsewhere often wonder how such big crops can be grown so far north, where the seasons are so short. Many think that warmer climes and longer seasons should insure larger crops and greater returns.

I shall endeavor briefly to explain some of the conditions which lead up to success in Maine, hoping that a better understanding of the matter may enable those in other sections to plant wisely, and to exercise care and discrimination as to how, when, and where they plant. For it takes more than one favorable factor to insure success in potato culture.

The growing of potatoes is a science which calls for considerable study. If one wants to grow good potatoes it is much wiser to go where good potatoes grow, than it is to choose a location arbitrarily, and then endeavor to supply the conditions which nature has not provided. For potatoes may not be planted "any old place," up on a mountain, or down by the fountain, or eke by the raging sea. They will struggle along under adverse conditions, just as a banana tree will; but they don't want to. On the other hand, they will grow gladly, and produce largely, when planted in the right kind of soil, in the right kind of a climate, and given the necessary plant food.

No Need to Go to Maine

One does not necessarily have to go to Maine to raise good potatoes. But one must at least endeavor to supply many of the factors which there lead to success, plus those which each individual section calls for. And it is not easy to find elsewhere so many favorable conditions. I have seen nearly all the best potato sections in the United States, and in my judgment, Twin Falls, Idaho, approximates most nearly the conditions which exist in Maine. The soil, which is a light volcanic ash, is particularly suitable. The Mount Sopris section, in Colorado, is one of the best. I have not seen elsewhere any brighter, thriftier plants.

I can say with equal candor, however, that so far as flavor is concerned, the Salinas valley, in California, is not far behind Maine. If you have ever eaten a Salinas valley Burbank, baked just right, you have a pretty fair idea of how the Maine Green Mountain potato tastes.

"But," you say, "I can't see why a Salinas potato tastes any better than a Lompoc potato, one grown in the adobe of Dublin, or the sandy soil of San Berdoo. Nor do I see why Maine has such a reputation."

In the first place, potatoes are as selective, as to soil and climate, as nearly any product you can name. True, they will grow in more widely separated districts than some fruit, but they respond only when given the best conditions, and are raised most profitably only when soil and climate are both favorable, cultivation thorough, and plant food plentiful.

What the Potato Requires

Potatoes demand an open, friable soil. A potato wants room to breathe. It wants room to spread. It wants air, oxygen, nitrogen, water, and a modicum of heat and sunshine. The soil must be well drained. Potatoes want water. They are nearly all water. But they don't want to live in the water. They prefer to grow in a soil that is porous enough so that they can send out tiny roots and drink as much as they need without having to swim. Too much water sets up so much evaporation that the soil becomes cold, and the tubers cannot thrive. Yet the vine is tender and sensitive. More sensitive to heat than to cold. If the vine has no moisture at the root to draw from, the leaves will quickly curl, and nitrogen cannot be drawn from either soil or air. If there is too much moisture at the root, excessive heat will scald the leaves. Too much moisture in the air leads to rust and blight. Rolling, sloping, well-drained hillsides are far preferable to bogs, swamps, or heavy soils, for potatoes.

To recapitulate, the potato needs a fair degree of warmth for the tops and should, therefore, not be planted too deep. The top cannot stand excessive heat. In fact, the tops demand cool weather, and always respond when planted in sections where there are periods of cool, cloudy weather, with frequent summer rains. In the absence of summer rains, the next best thing is to plant near enough to the sea to secure a cool, moisture-laden atmosphere.

The soil in Maine's potato section is open, friable and well drained. We have frequent summer rains, also even there, the hilly sections are the best. The summers are cool. Not nearly so cool as the weather along the coast north or south of San Francisco, not nearly so warm as the Los Angeles summer.

The Maine soil is a lime-clay formation, easily worked. Looks very like a yellow loam mixed with sand.

Soil, Water, Humus

If soil is too sandy, it is likely to be deficient in plant food. Very sandy loams usually dry out too readily. Potatoes do best in a soil that will allow air to enter and water to permeate, with drainage sufficient to insure that the roots shall never stand in water.

A proper supply of humus is very important in potato culture. Aside from its value as a fertilizing element the humus content determines to a great extent the moisture control of the plant. I strongly favor the rotation of crops, and the turning under of green crops, such as red clover.

The best potatoes in the land are likely to be those near the sea, where they get heat, air and the warmth of sunlight. Too much water always makes the soil cold as the result of rapid evaporation and it takes more heat to warm excessive moisture content.

Irrigation can be successfully practiced if the water is properly applied in just the right quantity, and at the right time. But you can't flood and soak a potato field as you would a strawberry patch or a rice field and expect to get good results.

Intensive Culture Pays

From a financial standpoint, perhaps the most impressive fact is that given the proper soil and climate, the greatest net profit is gained by intensive culture and through the use of the maximum amount of fertilizer supplying the elements in which the particular soil is deficient. Fifty acres chosen, planted, cultivated, fertilized and sprayed by an expert, will return a much greater net profit than one hundred acres planted by one who doesn't understand the business.

In Maine the winters are long. It is not safe to plant before the latter part of April or the first of May. Some delay until the latter part

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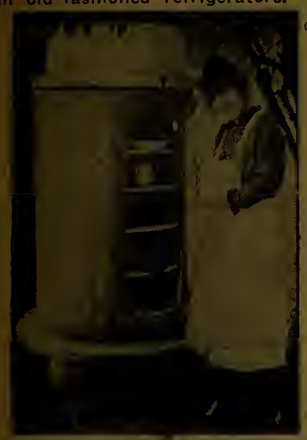

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[illegible] St., San Francisco.

May. Green Mountain and Gold Coin are the two favorite varieties, and they are planted exclusively for late varieties, while the Irish Cobbler is the only early variety favored. In very favorable seasons, the latter variety is sometimes more profitable, because it reaches the market when there is a demand for new potatoes. It is far safer, however, to delay planting till the soil is warm, and the danger of late frost over, and then plant Green Mountains.

The average crop in Maine is more than 250 bushels to the acre. It is safe to say that every experienced potato planter in Maine can raise 300 bushels to the acre, one season with another. And on small tracts, crops of 400 and even 500 bushels per acre have been raised. The average cost of raising potatoes in Maine before the war, was around 21 cents a bushel. Since the cost of fertilizer has soared, and wages have increased, the cost per bushel is materially higher. The best fertilizer formerly cost from $30 to $40 a ton, and the best results were only obtained when a ton per acre was used. But it pays to fertilize, and to use the best fertilizer that can be bought. Potash, however, is one of the most essential elements, and that is now exceedingly high. Yet experiments have shown that the grower profits largely upon every ounce of fertilizer he puts into the ground, provided only that he plants in the proper soil, at the proper time, and gives the proper cultivation and care.

In normal times, potatoes can be raised very profitably at 75 cents a bushel. Last year they sold quite readily for from $1,50 to $3.00 a bushel. So the Maine potato growers acquired considerable wealth. More than 2000 motor cars were bought last year by the farmers of Aroostook county alone. Ma hung up her calico sun bonnet and donned a silk motor cap. A new chapter was added to the Arabian Nights and labeled Aroostook Potatoes. Aladdin's lamp was waved over the potato fields of Maine, and behold, bank accounts, larders heaped high with the good things of life, and a procession of high-powered high priced cars commenced to speed through the land.

They Plant Small Potatoes

There is one custom in Maine which I do not approve of. The custom has been to select small potatoes for seed. I believe in selecting the best seed from the best hills, and then planting the potatoes whole. This naturally adds to the cost for seed, but it avoids the danger of seed infection, saves the cost of cutting, and, in my experience, pays.

I prefer to plant fourteen inches apart in the row, and thirty-six inches between the rows. I believe in frequent hoeing and hilling, frequent spraying, and constant care and cultivation. Tractors can be used much more profitably than horses, for plowing and harrowing the soil. I strongly favor the newly invented plow with the revolving tiller, which thoroughly pulverizes the soil. Of course we use machinery in planting and harvesting. Tractors can be used more profitably than horses, for hauling to market. It pays to use the digger which carries an auxiliary gasoline engine, to elevate the potatoes and deposit them in bushel baskets. This avoids the greater part of the expense usually involved in picking and the picking has been a very expensive part of harvesting.

'Rah for San Bernardino!

SAN BERNARDINO is to the front this year in victory garden work. It has planted 91 per cent of its vacant-lot area to vegetables of various kinds, chiefly potatoes, and is aiming at second and third crop wherever possible.

This has been done in spite of the fact that the city water company has flatly refused to grant any reduction in water rates to the gardeners. Just why the water company has taken this unpatriotic stand is not explained, but it has worked a considerable hardship to the gardeners and a corresponding profit to the company.

Here and there, all over the country, may be found monopolists that are making big profits out of the war, but many of the water companies are content with a half rate for vacant-lot gardening irrigation.

John Ralphs, Jr., is chairman of the Citizens' Garden Committee and it is largely due to his zeal as well as that of Publicity Director DeWolf that so many war gardens have been planted.

San Bernardino's school children have planted over 1000 gardens, some of them as large as 250x400 feet, the larger ones being attended by two or three children.

The children are much interested in the local garden contest, those receiving certificates of award being particularly pleased and proud.

On the 21st of June there was a big garden dinner in the town, at which over 1000 ears of roast corn were served. At the same time and place a display was made of vegetables, and some very fine specimens were exhibited.

'Rah for San Bernardino! It is doing its bit and a whole lot more.

Wall Street Farmers

A NUMBER of Wall Street financiers have organized a corporation with the purpose of cultivating the choice wheat land on some 16,000,000 acres of Indian reservations. Out of their plenty they have subscribed $2,000,000 for the initial needs of the undertaking. If more is needed, there is plenty where the first came from. They are going to put farming on a manufacturing basis. Nothing will be done by hand which can be done with machinery. There will be a tractor for every so many acres, and all the most modern implements and most efficient tools. There will be model cottages for the workers, designed by architects who have made a study of esthetic as well as utilitarian features. They promise a picture of farmhands dwelling in community centers, being conveyed to their employment in motor buses, working by a carefully planned schedule and kept in good humor by the careful attention to their welfare which marks the conduct of the modern factory.

It is said that the projectors of the enterprise are not moved primarily by desire for dividends. They are patriots and have chosen this way to increase food production. But they would serve no good purpose if they conducted the business perpetually at a loss, and there will come a time for the scrutiny of cost sheets, just as there is such a time in the history of a rolling mill or a cracker factory. It is to be hoped that they will ultimately make a business success of their farming, and earn dividends on every dollar they have invested. Agriculture as a whole has everything to gain and nothing to lose by being shown that it is a business that ought to be run on business principles.

Grow a Fall Potato Crop

THE production of a second or fall crop of potatoes in many sections of California should be encouraged

Potatoes ripening in the fall will keep much longer than those maturing during the spring or summer

It is preferable to use the potatoes maturing in the spring for seed from which to grow the fall crop.

A second crop of potatoes should be grown only where the soil is adapted to its needs and where adequate irrigation is available.

10¢ DISTILATE **FRANCO AUTO-TRACTOR $425**

The Small Farm Tractor

FOR its rating there is no better or more economical power plant than the Ford motor.

Couple this motor with a Franco Auto-Tractor (track-laying type) and you have the sturdiest small farm tractor on the market, with the least expense of operation and upkeep. The company will guarantee to furnish all replacement parts for one year for $30.

The Franco Auto-Tractor converts your Ford touring car or roadster into a tractor and can be detached in 20 minutes.

Attached to a Ford, with the motor in good condition, you develop 8 mechanical horsepower at the drawbar. You have a better and more powerful motor than is installed in many tractors costing from $1000 to $2000.

The Franco Auto-Tractor gets its power from the double gear reduction—a patented feature possessed by no other. The internal sprocket and chain drive is stronger than that of the largest motor trucks.

The narrow gauge tracks keep the attachment on the unplowed ground, insuring the utilization of all power.

The Franco Auto-Tractor is built by the Straub Manufacturing Co. of Oakland, Cal. There is no delay in shipment of machines or extra parts.

The Franco Auto-Tractor is worth the most careful investigation on the part of every farmer who has use for a small tractor.

Full information on request.

Local representatives wanted.

Cash price, $425. On terms, $450; $100 down and $50 a month. Only a limited number are being sold on terms.

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Greatest Stock of Second-Hand Lumber, Doors and Windows and Plumbing Material since wrecking the Fair. 25 buildings now coming down for Government Shipyard. For information write to

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WRECKERS,
1501 TO 1527 MARKET STREET,
SAN FRANCISCO.

Bailey Millard, Editor.

The Farmer Is No Fool

THERE is a lot of crass nonsense in all this talk about the relation of the farmer to the war.

Did you ever go out into the country and talk with the big-muscled, good-natured man pitching hay or mending a barbed wire fence and get his ideas about food production and how the war may be won by it and so forth?

We don't mean the lean-faced, overworked, rope-harness farmer who is pinching along trying to meet a mortgage he never can pay.

We don't mean the man who sits in a little office in the corner of a big ranch and only sees his hired men once or twice a day.

We mean the good, average farmer who has a forty-acre piece of land that he is tilling to the best of his ability—the man who pays his debts and is banking a little money.

That's the man.

Now if you talk with him what will you learn?

You will learn just this—that he is not putting forth much greater efforts to produce food in war time than he ever was before. He always was a hard worker and he always will be. He gets up at five in the morning and he isn't afraid to work till sundown. His farm produced just so much foodstuff last year and it will produce just so much this year. He may raise a little more hay or a little less barley this season than he did last, but he has been working up to full efficiency and he is still on the job, whacking away.

Now this good average farmer is no fool.

He gets more advice than any man in the world.

College professors send him reams of literature.

The Department of Agriculture fills him up with its wise dope.

The Food Administration tells him what his obvious duties are and how he ought to go about them.

The rural press and the city newspapers write learnedly for his benefit.

He is called a slacker if he doesn't do precisely what fifty-seven different kinds of inspired idiots tell him he ought to do in fifty-seven different kinds of ways.

But he is not confused by all this advice and criticism.

He gets up at five in the morning and works till sundown just the same. He knows what his land will produce better than any college professor can tell him. And, reading about the doings of profiteers in the papers that criticise him so severely, he thinks that there is no harm if he raises barley instead of wheat or corn instead of alfalfa...If there is more money in onions than in potatoes he is going to raise onions.

Unpatriotic? No. He is just as patriotic as the editor or the college professor. He has just as many stars on his service flag as they, and perhaps more. He is buying all the Liberty Bonds he can afford to buy and he is giving as much as he can to the Red Cross.

If you ask him what his view of the food situation is he will say, "This government of ours wants more food for its soldiers and its allies. Well, I want to see more food produced myself. The government wants wheat. The place to raise wheat is on wheat land. Mine is fruit land. There is a whole lot of good wheat land on this coast that never has produced anything. Let them get busy with that. I am planting peach trees."

There you are. That's the whole story.

And if Uncle Sam is so anxious for our farmers to produce more wheat why hasn't he done the way the British government has done—put a premium upon every bushel of wheat grown upon land that never produced it before?

But first let him open up the idle acres—just as England has done—by authorizing practical farmers to enter upon any lands not being used for the growing of foodstuffs and to pay a nominal rent for them for the duration of the war.

King Potato Will Score

LOOK at the cartoon on this page!

We think Mr. Hammond has shown the whole food situation in a few pencil lines.

He has told the whole story—the story that Herbert Hoover and his able assistants and the four-minute men all over the country have been dinging into our ears for the past six months.

Mr. Hoover has been telling us that if we raise and eat large supplies of potatoes, consuming them instead of wheat, the war is as good as won.

Nothing is truer, and yet we doubt not that the pro-Huns of this country—and there are millions of them—are eating all the wheat and wheat products they can lay hands on.

Carrying Mr. Hammond's idea a little further, suppose the next man at the bat on the allies' side is a camouflaged pro-Hun—a man who, though he buys a Liberty Bond or two and wears a Red Cross button, goes home and in the bosom of his family, gives shouts of joy over a victory by the Crown Prince or Hindenburg or the submarining of a 20,000-ton British liner with a large passenger list of women and children—the man who rejoices when the long distance gun kills a lot of people at worship in a Paris cathedral and says when Belgian women are ravished, "It serves them right."

MURPHY AT THE BAT

What does that man do?

He takes the bat, gives it a feeble flirt and lands the ball right into the hands of the Hun pitcher.

But Old King Potato is going to score just the same. He is going to make home run after home run and nothing can stop him.

To be sure, the farmers are not growing many more potatoes than in an ordinary year, possibly less. They know that they don't have to. They know that, following up their great harvest of "spuds" last year, the home gardeners all over the land are putting forth renewed efforts to heap up their potato bins.

As a matter of fact the rancher with a large acreage of ordinary land save in particular instances, as, for example, George Shima, the Delta potato king, cannot raise potatoes. Unless he has land like Shima's there is nothing in it for him with potatoes at one and a half to two cents a pound.

Beans, corn, wheat, barley—yes. These all command good prices. But potatoes, on account of the enormous quantities grown in the home gardens, are cheap and are going to remain cheap.

It is a blessed thing that they are cheap. Their very abundance and cheapness are going to win the war for us.

It gives a chance for wheat to score for the allies as well as potatoes.

Sometimes we hear the peevish question, "Why can't we eat the wheat and send the potatoes to France?"

It's a silly question, but it must be answered again for the thousandth time.

Wheat can be shipped and handled to far better advantage than potatoes. Wheat is more concentrated food and its products will keep a long time. The 1915 crop of Australian wheat has not yet been marketed. Suppose that crop were potatoes. They would all have spoiled long ago.

While it is true that potatoes contain over 78 per cent water they are rich in nutrition. Germany, super-efficient in this one respect at least, has been planting potatoes even between the ties of railroad tracks. We do not have to go that far in intensive cultivation, yet we must raise immense quantities if we are going to win. And we are not going to send them to Europe to spoil.

But that is not all. We must give the best food to our fighters. This is not only a matter of justice but of common sense. Feed the soldiers the best we have.

This we are doing and will continue to do, and this is the policy that is going to win the war.

Sunflowers

"Young America" Scores

"Fools and children tell the truth," we are told. If you don't believe it, read the following:

"I saw your mother going to a neighbor's as I crossed the street," said the lady caller to the little boy. "Do you know when she will be back?"

"Yes'm," answered truthful Jimmy. "She said she'd be back just as soon as you left!"

The Slackerette

Mary knits our soldiers' socks,
Doing her bit with glee—
Cissy knits her pretty brows,
But not a sock knits she.

Exempt

"Sapleigh has reached military age, hasn't he?"

"Yes, all of him except his mind."

Another Thing

"There's some Rhine wine I found in a German trench. Sample it with me?"

"Do you mean to say you'll drink German wine?"

"Oh, no. I'm only goin' to intern it."

Patriotic Neighbors

Crawford—You must have felt proud when your patriotic display brought all your neighbors to see you.

Crabshaw—They all came around to tell me that all my flags were hung up the wrong way.

In the Thick of It

"He says he is where bullets are the thickest every day!"

"Yes—he works in a munition factory!"

Inopportune

British Sentry—Confound those 'uns, I just 'ad a bite!

Saving on Soap

First Tramp: What are you doing to help win the war?

Second Tramp: I am letting my whiskers grow.

Unafraid

"I suppose you know De Blow has enlisted? He says he'll be where the fire is hottest."

"That accounts for it. He applied for a station at one of the soup kettles."

Too Much Natural History

In a detachment of Confederate soldiers captured near Warrenton, Va., several prisoners, by a freakish coincidence, bore names that resembled those of animals. The sergeant at the desk, a testy, fussy fellow, eyed them crossly.

"Your name!" he snapped to the first.

"Fox."

"Next!"

"Baehr," was the reply.

The sergeant sniffed and glanced at the third.

"Wolfe," said the soldier, and his interrogator gave him a sharp look.

"Next!" he shouted; and he turned a dark red when the stolid answer came: "Campbell."

The sergeant knew well enough that they were not tricking him, for those were not the days of tricks, and the tired faces were impassive.

"And what do you call yourself?" he asked another tall Johnny in ragged gray.

"Lyon," the fellow responded sadly, whereat the officer threw down his pen and shouted with good-natured laughter:

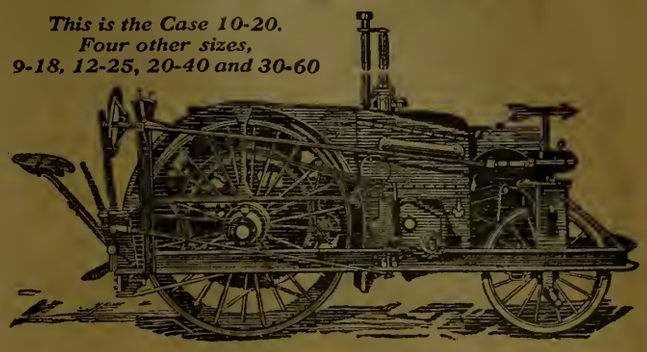
"Go order some cages built!" he roared to a private. "We've got to shut up a whole blamed menagerie in the camp."

The Irony of Fate

CASE

KEROSENE TRACTORS

This is the Case 10-20. Four other sizes, 9-18, 12-25, 20-40 and 30-60



Popular in Every State and Country

THIS is a picture of the famous Case 10-20 Kerosene Tractor, the model that has been purchased by thousands of successful satisfied farmers.

It pulls three 14-inch plows anywhere a team can continuously pull one plow. It is the most powerful tractor in the 5000 pound class. It delivers 14 7-10 per cent more drawbar horsepower than rated.

It embodies the latest and best engineering principles, being built by the J. I. Case Threshing Machine Company, famous among farmers for 76 years. So it is not an experimental type made by a concern unacquainted with farm needs.

It has a 4-cylinder Case valve-in-head motor and burns kerosene successfully and economically. An efficient air strainer prevents dust and grit entering cylinders.

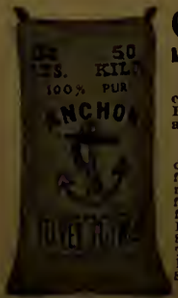
In plowing, all wheels travel on unplowed ground. The combined tire width of drivers is 32 inches. There is absolutely no side draft and no soil packing.

Under belt, this Case 10-20 drives a 20 x 36 Case Thresher with all equipment; a Case No. 16 Silo Filler, and other machines requiring similar power.

You cannot afford to buy any tractor before you learn the advantages of this Case 10-20. Inquire of a Case dealer or write to us for a catalog.

J. I. CASE THRESHING MACHINE CO., Inc.
Founded 1842
1200 Erie Street, Racine, Wis.

(744)



SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand.

Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyard; the best for bleaching purposes. LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.
624 California St. San Francisco, Cal.

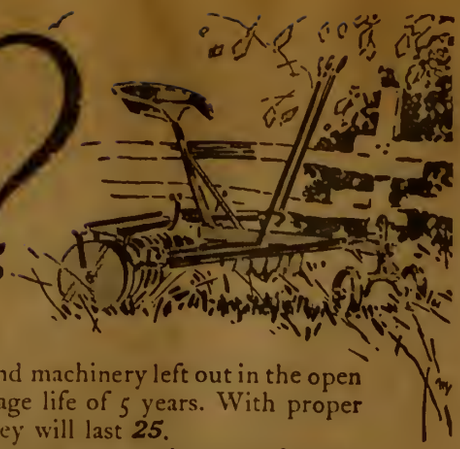
Ask Your Dealer for
EL DORADO COCOANUT OIL CAKE
for Horses, Milch Cows, Chickens, Young Pigs and Hogs. Cheapest feed in the market today. If your dealer doesn't carry it, address
EL DORADO OIL WORKS,
433 California St., San Francisco.

ANTS

SCHRADER'S

Ant Destroyer—is slow acting—does not kill instantly, but gets the nest as well as the parent. Does not lose strength. Positively non-poisonous—no danger to children, house pets or foodstuffs. Send 8c for trial can. Ask your neighbor. She uses it. At your dealer. Accept no substitute. Write Schrader Chemical Co., Dept. O, 19 to 27 Minna St., San Francisco, Cal.

5 years or 25?



Farm tools and machinery left out in the open have an average life of 5 years. With proper protection they will last *25*.

If *your* implements are rusting out of doors, start an implement shed at once. Use California Redwood for posts, mudsills, frame, siding and shingle (or shake) roof.

California Redwood

Resists rot and fire

Redwood contains a *natural* preservative which gives it wonderful living power in contact with the ground, or when exposed to the elements. Redwood does not have to depend on *artificial* preservatives for its durability.

And Redwood is *fire resistant*. It gives you real protection.

Redwood is light in weight, easily worked, and the seasoned lumber does not warp, swell or shrink.

Its use for *any* farm purpose is a real economy.

FREE BOOKLET: Write today for "California Redwood on the Farm." And consult your local lumber dealers. When writing, please give us their names and addresses.

California Redwood Association
771 Exposition Bldg., San Francisco, Cal.

Ask for the child's story of the "big trees" of California—there's a copy for every child in the nation.

Green Fruit
Honey, Hay and Poultry WANTED

60-acre ranch for sale in the San Joaquin Valley, $150 per acre. Automobile trucks for sale.

Phone Kearny 2407.
P. O. Box 2177.

We have made the handling of Green Fruit and Vegetables, Oranges, Lemons, Dried Fruit, Comb and Extract Honey, Beeswax, Hay, Grain, Wool, Butter, Cheese, Eggs, Poultry, Dressed and Live Turkeys, Broom Corn, Beans, Potatoes, Onions and Hogs a specialty for over forty years in the San Francisco Market. Ship your produce to us and you will receive the highest market prices and immediate cash returns. Correspondence and consignments solicited. Please mention this paper when you ship.

W. C. PRICE & COMPANY
General Produce Commission Merchants,
412-444 Front Street, San Francisco.
United States Food Administration License No. G41741.

White and Brown Leghorn Chicks, guaranteed strong and vigorous, and bred for large egg production. Thoroughbred stock. Price, $12 per 100; reduction by the 1000. Eggs, $1.50 per setting. Stock for sale.

I use and sell Pioneer Incubators and Brooders. There are no better machines made. Prices reasonable. Write for particulars.

JAMES D. YATES,
Poultry Judge, Modesto, Cal.

If readers of this publication do not find advertised just what they are looking for, write Orchard and Farm, Examiner Building, Los Angeles, and you will be put in touch with reliable firms handling the goods desired.

Capons Instead of Cockerels

By Mrs. H. Ament
Of Santa Monica, Cal.

WHEN I was in San Gabriel, doing some caponizing for Mrs. Duckrow, 202 California street, I met a gentleman who had a big bunch of Rhode Island red cockerels, between six and twelve weeks old. They were a fine, husky lot, and I tried to interest him in making capons of them.

He had his plan, however, which was this: He had confined these birds by themselves and was feeding them on a fine, fattening grain ration and was going to put the cockerels on the market at two and one-half pounds weight and expected to get 50 cents a pound. He would keep them about four or five months.

Let us suppose that he has one hundred cockerels weighing two and one-half pounds apiece. At 50 cents a pound, this would bring him $125 for the 250 pounds of poultry meat after he had kept them five months.

On the other hand, if they were made capons, they would weigh at least ten pounds apiece and bring at least 50 cents a pound. This would be 1000 pounds poultry meat or $500, and he keeps them ten months.

Cockerels will eat twice as much as capons and take on weight only half as fast.

Cockerels for market are fed high-priced grain feed, while a capon needs only sprouted oats as grain feed, with cooked and uncooked vegetables, greens and water. Every ounce of feed goes to build the finest meat on earth, while the capon keeps healthy and happy, and all sizes and ages can be herded together.

I firmly believe that the same amount of time and money spent on these cockerels to fit them for market in five months would carry the one hundred, if made capons, the full ten months.

Of course, you must raise your own vegetables and greens and pull them and cook and cut them. All this means work, but it saves buying scarce and expensive grains, which are not needed in raising capons.

How to Ship Eggs to the Best Advantage

THE Food Administration is waging a campaign for the conservation of food products, especially those which are of greatest value for the use of our fighting men. We can assist materially in many ways. For instance, eggs that are broken are absolutely destroyed, and even though the transportation company pays a claim for the loss thereof, the fact remains that the food is destroyed and not conserved.

Eggs leave their shipping points packed in cases supposed to insure their safe delivery, but the fact remains, as established by government investigation, that two dozen eggs out of every thirty dozen cased reach their destination in a cracked, mashed, dented or leaky condition.

For New York City alone this means that 100,000,000 eggs are annually found to be in a damaged condition following their arrival from the shippers. This causes an annual loss of $3,000,000 to poultry dealers.

An inspection of crates shows that they have been carelessly nailed up. On the other hand, the government inspectors find that nineteen eggs in each case are cracked before being loaded on the car, and that careless packing in old and flimsy cases accounts for the additional breaking of five eggs in a case.

This is brought home to us by the report of a visit of a traveling inspector in California, who finds that on account of the increased cost of all kinds of packing material and the difficulty in some instances of securing proper containers, many shippers of eggs have been using orange, lemon, shoe and miscellaneous boxes which were not intended for the transportation of eggs. Transportation companies will in the future refuse to accept shipments of eggs in any other containers than egg cases.

Shippers of eggs should see to it that egg cases are substantially nailed and that a cushion of excelsior, straw or corrugated cardboard is placed in the bottom of all cases and a similar cushion of excelsior, straw or corrugated cardboard on the top, and you should also see to it that all fillers are substantially new and fit snugly into compartments in order to prevent shifting.

All second-hand light or so-called Eastern cases must be roped or wired on each end, otherwise the transportation company will refuse to accept them for shipment. See that all old marks are effaced and that each case is plainly marked and substantially with shipper's name and address and consignee's name and destination.

Louisiana's Wheatless Days

MONDAYS and Wednesdays of each week in Louisiana are absolutely wheatless. No food or commodity of any kind which contains a particle of wheat is served, sold, delivered, manufactured or handled in any way.

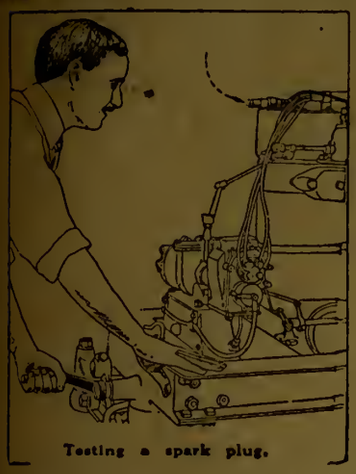
Throughout Louisiana the people have proved themselves more than willing to cut their consumption of flour to the minimum and to surrender as much of their flour as the government asks. Half a dozen parishes have made tender of their entire stock to the flour committee appointed by John M. Parker, Federal Food Administrator, and have pledged themselves to do without wheat for as long as required.

War Substitutes

ECONOMY for Waste
Co-operation for Criticism
Cornmeal and Oatmeal for Wheat Flour
Fish for Beef and Bacon
Vegetable Oils for Animal Fats
The Garden Hoe for the Golf Stick
Service for Sneers.
Patriotic Push for Peevish Purities.
Perishable for Preservable Foods
Greater Production for a Greater Peace.
The Beef You Do Not Eat for the Rice You Can Not Carry.
Conservation for Conversation
Common Sense for Common Cents
Marketing for Telephoning
Production for Pessimism

Testing Tractor Spark Plugs

TO TEST a spark plug, remove plug from cylinder head and place in a position on cylinder, as shown in the accompanying cut, with a piece of paper the thickness of an ordinary business card between the points. Set trip on magneto for starting and crank engine over slowly. If the plug is in good condition a spark will occur between the points and a small hole will be burned



Testing a spark plug.

through the paper. Spark plug points should be set about .025 or .030 inches apart.

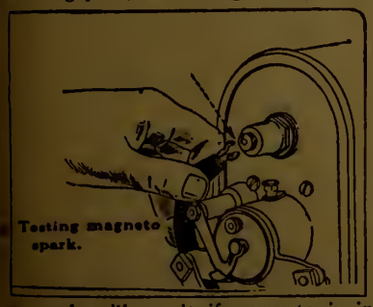
Do not screw plugs in too tight or they will burn in so it will be impossible to remove them without ruining them.

The plugs should be inspected from time to time and the pocket between the core and the outer shell should be kept free from carbon accumulation by use of wire brush. Only in extreme cases take plug apart.

Be sure all joints in plug are tight, as a leak in plug joints will cause plug to heat up and become damaged.

Testing Magneto for Spark

HIGH tension magnetos may be tested for spark by removing cable and holding cable connection about 1-32 inch from end of binding post; on turning the fly-whel,



Testing magneto spark.

a spark will result if magneto is in good condition.

A good fat spark should result at all times if impulse starter operates. The cut is used by courtesy of the International Harvester Company.

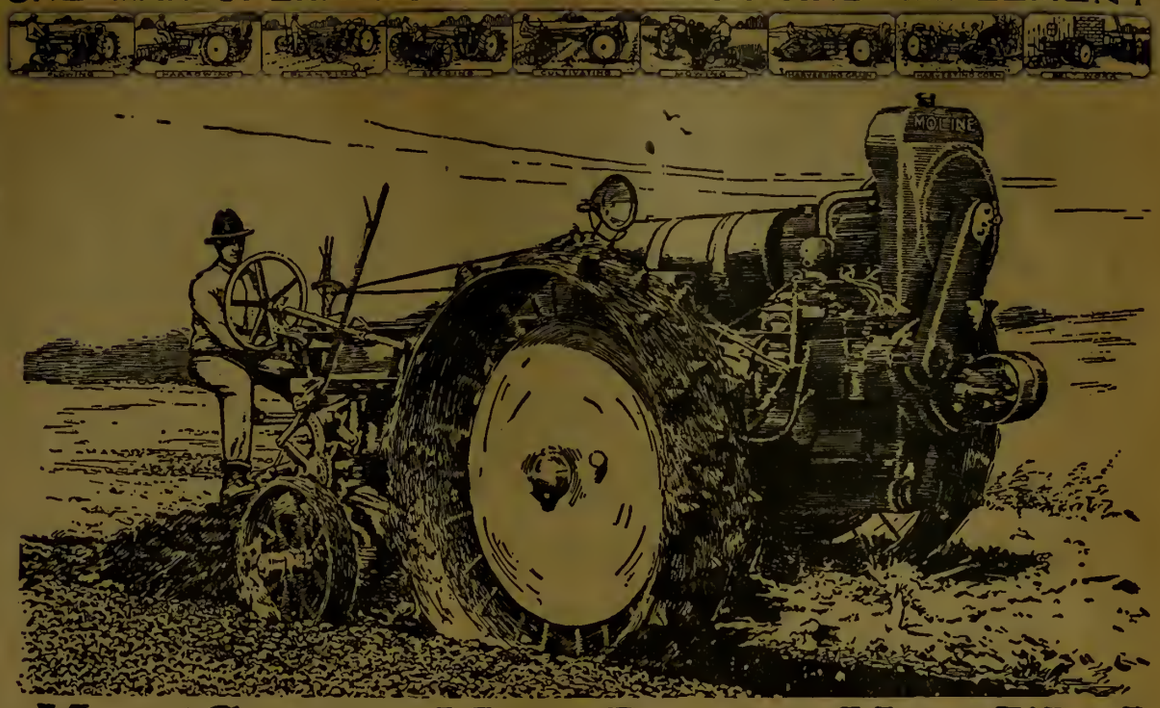
Harrow Early and Often

BACKING up the Hardy W. Campbell theory of frequent harrowing to conserve moisture, so often insisted upon in Mr. Campbell's Orchard and Farm articles, County Agent DeLore Nichols of Coconino County, Ariz., says in a report of visits made to different parts of his county last month:

"Conservation of moisture was necessary in nearly every case. Where the harrowing had been done, it was several inches to moisture, but if not the moisture was near the sur-

The findings were about as follows: [illegible] harrowed, 3 inches to moisture; [illegible] harrowed, 2 inches to moisture, [illegible] inches the moisture [illegible] inch down or right [illegible] surface and [illegible] under the [illegible]

ONE MAN OPERATES BOTH TRACTOR AND IMPLEMENT



More Speed-More Power-More Work

EVERY farmer who sees the new Moline-Universal Model D plowing is astonished at its speed, the splendid quality of work and the ease at which it operates. After seeing the Moline-Universal work, you will realize that the number of plows pulled is less important than the amount of work accomplished.

Great Capacity for Work

Speed, power and light weight are combined in the new Moline-Universal tractor to a remarkable degree. As a result, under any ordinary plowing conditions, the Moline-Universal pulling 2 plows at 3½ m.p.h. will plow 9 acres in a 10-hour day—equal to a 3-plow tractor traveling 2¼ m.p.h., the usual tractor speed. Thus the Moline-Universal gives you large capacity for heavy work, ample power for all belt work on the average farm, with these distinct advantages over other tractors—light weight; greater economy and ease of operation; ability to do all farm work, including cultivating, and ONE-MAN control of both tractor and implement from the seat of the implement, where he must sit in order to do good work.

Does Better Plowing

An advantage of speed plowing is the better quality of the work. With properly shaped moldboards and the Moline-Universal tractor plowing at 3½ m.p.h. the soil is more thoroughly pulverized and compacted than at slower speeds. It is left in such a level and fine condition that furrow marks are hard to distinguish.

Positive Reliability

And keep this in mind always—the Moline-Universal is built for positive reliability. The powerful 4-cylinder, overhead-valve, vibrationless engine delivers full 9 h.p. at drawbar and 18 h.p. on belt; unusually large bearings lubricated under 35 lbs. pressure; Remy electric starting, lighting and ignition system with governor generator; all moving parts completely enclosed; 15 Hyatt roller bearings; 5 adjustable ball thrust bearings; 7 splined shafts; differential lock; heat treated and steel cut gears—these give "positive reliability," and make the new Moline-Universal the best tractor money can buy.

Self Starter and Electric Lights

Self starter relieves the back breaking strain of cranking, makes tractor operation easy for non-robust help. In fact, many women and boys are successfully running Moline-Universal tractors. The self starter is a feature every overator will appreciate. Electric lights increase the working capacity of the Moline-Universal so that you can use the tractor night and day in the busy season. It gives you an emergency power always available to make up for any unavoidable delays.

Free Tractor Catalog

Your copy of our new tractor catalog which completely describes the Moline-Universal Model D is now ready. A postal will bring it to you, also the name of your nearest dealer. Address Dept. 48.

Moline Plow Company
Moline, Illinois
Manufacturers of Quality Farm Implements Since 1865.

MOLINE UNIVERSAL TRACTOR
It Solves The Farm Help Problem

PATENTS That Protect and Pay
Send Sketch or Model for Search.
BOOKS AND ADVICE FREE
Watson E. Coleman, Patent Lawyer, Washington, D. C.

WATERLOO BOY TRACTOR

A 12-25 two-speed, one-man Tractor.
Big Power, Big Service, Big Value, Low Operating and Upkeep Costs for Field, Orchard and Road Service. Catalogue on Application.
W. L. CLEVELAND CO.,
208 N. Los Angeles St., Los Angeles, Cal.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

GATES HOTEL
FIRE PROOF
LOS ANGELES
6th & Figueroa Sts.
Cafe and Restaurant
Garage in connection
Take Taxi at Station at our expense
LEE HOLLADAY Pres.
GEO. A. COLLINS Sec'y.

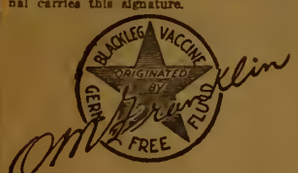
Don't Wear a Truss

BROOKS' APPLIANCE, the modern scientific invention, the wonderful new discovery that relieves rupture will be sent on trial. No obnoxious springs or pads. Has automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lies. Durable, cheap. Sent on trial to prove it. Protected by U. S. patent. Catalogue and measure blanks mailed free. Send name and address today.
C. E. BROOKS, 105 State Street, Marshall, Mich.

Kansas Germ-Free Fluid Vaccine for

BLACKLEG

This seal is our word of honor and your protection. If it is not on the label of every bottle don't use it. Only the original carries this signature.



DENVER, COLO. WICHITA, KANS. AMARILLO, TEX.

Made by Dr. O. M. Franklin, the Originator

Holds the record of immunizing more than a Half Million Calves against Blackleg, with—only one handling to each calf—has stood the test of time—easy and safe to use—cannot give the disease to calves or spread it in pastures.

Leading cattlemen use it exclusively and recommend it to their friends—ask any of them or write to the nearest office for references and free Booklet on Blackleg.

The Kansas Blackleg Serum Co.,
401 Bryson Bldg., Los Angeles, Cal.

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

You Pay Too Much when You Pay Too Little

To buy anything today at the price you paid for it even a half year ago is practically impossible. It can't be done—*you know it.*

The best way to economize in overall buying is to buy overalls that wear well and last longer. Buy the ones you have always depended on for comfort, service and value!

In other words, it is *always* good economy to buy Boss of the Road Overalls—*a Neustadter product.* Look for the Bull Dog on the label. It is your protection. Never has this trade mark meant so much to you as it does today.

Buy them from your local dealer

NEUSTADTER BROS.

San Francisco Portland

Straight Talk to Dairymen

BY HERBERT HOOVER

OF ALL the food industries of Europe, there is none which has been so stricken by the war as dairy produce.

The German people supported their herds by the import of feed stuffs from their neighbors. This being cut off by war, their produce in meat and milk would have fallen to a low ebb indeed had they not supported themselves to a considerable degree by stealing the cattle of the populations they have overrun.

I have had Polish and Serbian cattle in German pastures pointed out to me with pride by German officers.

I witnessed for years the stealing of Belgian and French cattle. In Belgium alone the herd diminished from 1,800,000 to 700,000 in three months of German occupation. At that point the protests of the Relief Commission held it in check. But in Northern France absolutely all of the cattle were taken before the Relief Commission arrived. There has been scarcely a child born in the north of France, and many in Belgium, whose continued life has not been dependent during the past three years upon American condensed milk.

It is worse than folly to put 5,000,000 of our boys into France if the civilian population of our allies are not also to be maintained in strength and morale with our food.

How Europe Is Draining Us

During this fiscal year North America will have supplied approximately 50 per cent in nutritive values of the foodstuffs imported by the Allies. Before the war we contributed probably less than 10 per cent.

No one knows how long the war will last. If we are to win we will with four collateral weapons—men, munitions, ships and food. It may require years to win it and we intend to fight it out on this line—not if it takes all summer, but if it takes all of your lifetime and mine.

There falls upon us an increasing duty in the provision of food. To provide supplies we must build up reserves. The first reserve in meat and dairy products is the maintenance of our herd. The second is to build up stocks in our warehouses in seasons of surplus production. If we can maintain our herds and our production, we can, in any emergency reduce the consumption of our own people without damaging our health by margins of such an amount as will provide for the Allies.

We are today in the season of the largest dairy production and we have a minor surplus. I do not look upon this with alarm but with satisfaction. One result is the increase of our butter and condensed milk in storage. I wish it were larger. It is a factor of safety in the war situation that cannot be over-estimated. We must not take risks in war.

Exactly Where We Stand

We entered upon the harvest of 1917 with a less supply of all kinds of feeding stuffs than at any similar period in fifteen years.

The dairyman was caught between two forces—a low price in milk, held down by inherent opposition of the consumers, and high price in feeding stuffs and labor.

We had all hoped that the unusually large promise of feeding stuffs last harvest would result in decreased prices in feeds and that the dairymen's position could have been saved without material increase in the price of milk to the consumer. We worried along until November, when there developed so great a car shortage by the war demands upon the railways that it became evident that the crop would not move with sufficient rapidity to remedy feed prices before spring. To make matters worse we came into an unparalleled period of storm weather. By the middle of February the railways had moved 150,000,000 bushels of corn less than normal and correspondingly less quantities of all other feeding stuffs. There were immense stocks in the hands of our feeding stuffs producers, but it could not, through railway strangulation, reach the consumer. We had therefore to suffer from continuously ascending prices until the railways were able to offer a freer movement.

Only Solution of Problem

One difficulty to both our producers and consumers is that our marketing system in dairy products is inherently a wasteful and expensive system. Our consumers need relief from the present high price levels of milk. This relief may partly come through cheaper feeds but it appears to me must be to a larger degree in reduced cost of distribution. It is a matter of vital importance to the health of the children of our poor.

In maintaining our dairy herds that they may be ready for any demand, dairymen face one paramount difficulty—that is labor. More men will be drafted to war, more will be required to furnish them munitions.

There is only one ultimate solution in this industry. That is, by the increased efforts of our men and the additional efforts of our women. It devolves upon us to maintain our present great potential strength in herds, for they cannot be re-established for many years if once lost.

It is the duty of every dairyman to stand by with that courage that comes from the knowledge that he is a part of the world's reserve army that may, at any moment, be called into battle for our existence and the existence of the next generation.

Sire Is Important Factor

THE economical production of milk is possible only when the cow is an efficient one for the purpose and when the person in charge knows how to manage the machine. A cow is born with a certain natural ability to produce milk if given proper conditions. The extent of this ability is mostly a matter of heredity or breeding.

The high producing dairy cow is not the result of any special manner of raising the heifer calf. The most skilled feeder cannot put this quality into a cow born without it. All the good feeder can do is to make full use of the ability to produce milk which the cow has inherited.

The extent to which this milk producing ability is inherited varies greatly as is well known. Even in the well bred dairy herds not all the heifers raised prove good enough to retain in the herd. Constant culling of the inferior cows has been found one of the most important measures in maintaining a profitable herd.

The ability to produce milk is inherited through both dam and sire but since the sire is responsible for half the inheritance of each young animal, he is clearly the most important factor in improving the herd according to C. H. Eckles of the University of Missouri College of Agriculture. If the cows in a herd are capable of producing only 200 pounds of fat a year and the sire represents a breed or family, the cows of which average 350 pounds of fat a year, it would appear reasonable that the heifers would average halfway between, an increase of 75 pounds of fat a year.

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Milking Machines Save Labor

THE shortage in labor is causing more interest than ever in the milking machine. Milking machines have been on the market more than 25 years but most of them have not been successful. As a result of years of experimenting, machines are now on the market that are past the experimental stage. Milking machines are giving the best satisfaction in hands of many users while others soon discard them. The successful use by many shows that the machine is all right when properly used. Experience has shown that the milking machine saves a great deal of labor, making it possible for one man to milk 25 to 30 cows in an hour, although extra time is required for cleaning the machine. The machine does not injure the cow in any way and animals prefer machine to hand milking. It is a question whether the cows milked with a machine hold up in milk toward the end of the milking period quite as well as when hand milked, so that the yield for the year may be a little less. Apparently the machine will do better work than poor hand milkers, but it is not quite equal to skilled hand milkers.

When the machine is properly handled the quality of the milk with reference to its sanitary condition is better than when it is hand milked but too often the machine is not properly cleaned, and then the milk is not in as good condition as that drawn by hand.

C. H. Eckles of the University of Missouri College of Agriculture suggests that a farmer who expects to purchase a machine will do well, first of all, to visit some one using a machine of the kind he is considering, and see it in operation so that he may decide for himself whether he wants it. In buying a milking machine use the same common sense that would guide the buyer of any machinery. It is safer to get a make that has been in use for some time, preferably three years at least, in order that the defects may have been corrected.

It is doubtful whether a milking machine is practical for fewer than 30 cows. The cost for an outfit for this many cows will vary from $150 to about $450, but if it does its work successfully it is well worth the price paid by the dairyman.

Value of Hog Wallows

SOME farmers favor hog wallows; others are strongly opposed to them. Filthy hog wallows are always a constant source of disease. Hogs wallowing in or drinking contaminated water are likely to contract disease. However, there are many advantages to be derived from wallows. A cool bath is very soothing to a hog in hot weather. It cleans the scurf from the skin and protects the hog from flies. Crude petroleum, sufficient to form a thin layer on top of the water, may be poured in the wallow about every ten days. One man in this State has a concrete hog wallow built so that he can drive his whole herd through it every two weeks. He has kept disease down in his herd and he carries upward of 1000 head. The concrete hog wallow should be located in a shady place and made so as to contain from 8 to 10 inches of water. A 2-inch drain pipe should be placed in the bottom of the wallow to permit its being cleaned out. And do not forget to clean it out occasionally.

In many cases a farmer is not financially able to build a hog wallow or a dipping vat. In Arizona, provide plenty of shade. Also apply the dip with a spray pump or sprinkling can or else rub on every part of the body by means of a brush. Do not apply the dip stronger than directed.—W. E. Schneider, Swine Extension, Tucson, Arizona.

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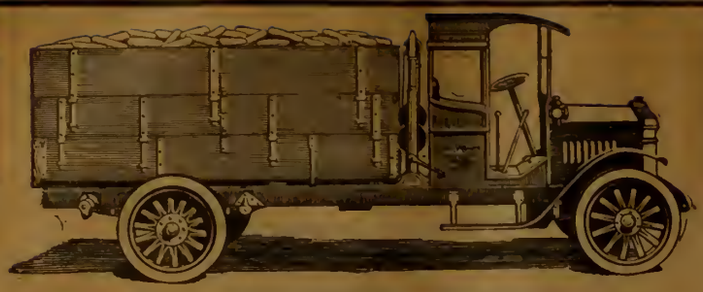

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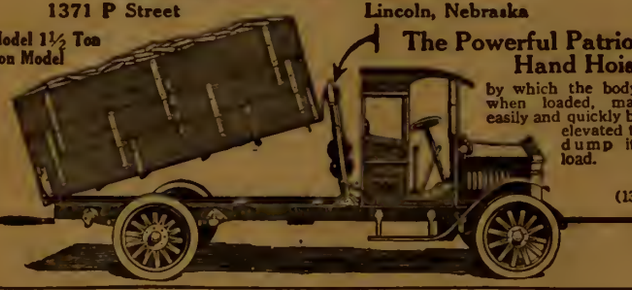

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Tractor Problems

Is your tractor giving you any trouble? If so, write to Tractor Editor, Orchard and Farm, Examiner Building, Los Angeles, and a reply will be mailed to you from our expert. If you have no objection both questions and answers will be printed in this department.—The Editor.

Kerosene Tractor

WHAT do you think of kerosene tractors? I have heard them knocked pretty hard, but then every kind of machine gets a whack from the other fellow—I mean the rival company—and it's passed around. What I want to know is, do you consider kerosene tractors a good thing?—T. J. O'B., Fresno, Cal.

They're all right, T. J. As you intimate, the best machines, like the best people, get a bad knock from somebody once in a while. It has been said that kerosene tractors are slow starters and awful carbon-producers. But the operating expenses of a kerosene tractor are much less than those of a gasoline tractor and that will pay for a lot of valve grinding. As for starting, a good kerosene machine has contrivances which obviate most of the difficulty. You will probably hear that a kerosene engine heats up too much, but a good one is always built to withstand overheating, and the fact of the matter is that most of the damage done in that way may be traced directly to the ignorance or carelessness of the operator. Run your engine as the instruction book tells you to run it and you'll have no trouble.

As to Steering Gear

IN selecting a tractor, is the automatic steering gear as good as any other kind?—O. M., Wenatchee, Wash.

Depends upon the machine. For a light tractor the automobile type is all right, but in any case the kind you want is the one that the makers recommend. They know what they are talking about, because they have tried out all the steering gear systems before they put their machines on the market. Don't worry about the steering gear. Select the machine with one end in view and that is adaptability to your needs.

About Cheap Oil

HAVE been much interested in your answers to correspondents about tractor oil. Am in a position to state that I have used some of the cheapest oils on the market and see no difference whatever between the results and those that come from using expensive oils. In these war times it pays to conserve oil.—H. W., Chico, Cal.

Yes, but please don't run away with the idea, as some of our other correspondents have done, that cheap oil is always as good as the more costly lubricant. Any old oil don't do. You must have one that makes a proper film, that flows freely and that really lubricates. Sometimes we are sorry we started this old oil controversy. People get wrong ideas. We are not radical in advising cheap oils. We don't advise them. Buy a good oil—the kind that suits your machine. If it happens to cost a little less than what you have been paying, that's all to the good. But price is not the first consideration.

How Long Will They Last?

YOUR talk about the life of a tractor has been very interesting to me. But do you actually think that the average machine will last more than five years? I've got a hunch that mine won't. It has been in pretty thorough service for two and a half years and the pistons and other parts are pretty badly worn.—J. P. K., Orland, Cal.

Did you read the experience of the Neenach rancher, published in the June number—the man who had a machine that had been runing since early in 1913 and had plowed over 4000 acres? That machine is running today and is in good condition. It ought to plow thousands of more acres before it goes to the junk pile. You say your pistons are worn. You probably mean your piston rings. The wearing of these rings reduces the amount of compression in your cylinders. If they are worn badly you should buy new ones and see to it that they have tight lap joints so that the full force of every explosion is utilized. The kind of engine that has long pistons and that has four rings instead of three is recommended by some experts. But it is all very much a matter of how you handle your machine whether any part of it wears out quickly. To be sure, there may be weak points—bearings that score easily and are rapidly put out of business. But the way the average tractor is built nowadays calls for pretty good workmanship and pretty good material.

Nobody really knows how long a tractor of any given make will last. You might wear it out in six months or in six or ten years. The amount of work it does and, more than anything, the amount of bad usage it gets will tell the story.

Machine Hard to Handle

MY machine is hard to handle. It works all right in other ways but it nearly exhausts me to run it six or eight hours. My fields are not very big and in the orchard, etc., I have to do a good deal of turning. Sometimes I think I'll have to go back to horses for a change and rest.—D. B. McK., Medford, Ore.

Don't do it. Horses are much harder to handle than the average tractor, particularly after a little experience. You probably are new to the game. Stick to it. Perhaps your steering gear needs overhauling. If you have the automobile type of steering gear it is quite likely that the worm has become so badly worn that it will not properly engage the gear. Disconnect it and turn it over a quarter turn. That will give a new bearing surface to the worm and will work more easily. It may be that you have too little back lash in your steering gear or too much end play. Have these corrected. You should not be exhausted after six hours in a tractor seat. Nervousness may have something to do with it. Take it easy. Make the turns slowly. Put a light cushion in your seat if it is uncomfortable. Above all things, get the right mental attitude toward your machine. Exhaustion comes from fretting and fussing. It's like automobile running. The man who is worried nearly to death by every little squeak and who is stopping and lifting his hood every few miles to see if there's anything wrong will never enjoy driving. After your hostler work has been done properly and the machine starts off all right don't worry about a strange noise or a jerk or two. Forget it. The older any machine becomes the more it may develop, but as for service it will get there just the same. And it's the get-there that counts after all.

Buy Farm Loan Bonds

THE extent to which farmers have begun to buy Government bonds has astonished many people. They will buy more bonds in the future than in the past, it may safely be predicted.

Federal farm loan bonds may be bought at almost any time at any of the twelve Federal land banks, or of the Federal Farm Loan Bureau at Washington. They bear 5 per cent interest. The interest is paid semi-annually. People who have only small sums to invest may buy "baby" farm loan bonds in denominations of $25, $50 or $100. For those with larger sums to invest, bonds may be obtained in the $500 and $1000 denominations.

Buy Federal farm loan bonds and forget about the taxes on them. Neither the township, town, village, city, school district, county, State or United States Government can tax them.

The retired farmer had far better, in most cases, sell his farm to a good tenant and invest the proceeds in Federal farm loan bonds. He is lucky indeed if he can make his farm earn him 5 per cent on its value by renting it; and he can scarcely ever do anywhere near that well over and above taxes, repairs, upkeep and insurance. He can get 5 per cent net by buying Federal farm loan bonds.

Suppose the farm is worth $20,000, and some good tenant farmer, who would build the farm up if he owned it, although in renting it it runs down, has saved $5000 and wants to buy the place. The owner may not see where he could invest the money so as to be safe, and therefore refuses the offer. But he might accept if he thought of the possibilities open to him.

Safe Financial Plan

He could accept the $5000 from the tenant and deed him the farm. There would be still $15,000 coming to him. He could allow the tenant to give a first mortgage for $10,000 for a Federal farm loan, thus paying him $15,000 in cash. The balance, $5000, could be secured by a second mortgage. He would accept this second mortgage freely, because it would be second, not to a mortgage which would be likely to be forcclosed, but to a long-term amortized mortgage, which he would assume and carry on himself if the purchaser failed, but which would be so easy to carry that there would be little likelihood of his failing. Anyway, the first mortgage would be paid for money, all of which, with the cash of the purchaser's money would be in the hands of the former retiring farmer. He would be safe because he would be getting all the cash involved.

He could then invest the $15,000 in Federal farm loan bonds.

These bonds are exempt from taxation and on them he would be paid at the amount of $375 semi-annually, or $750 a year. He would receive, say, 6 per cent on the $5000 second mortgage, or $300 a year. On this he would in most cases be taxed. His income, however, would be more than $1000 a year, with no responsibility—and would be in the hands of a tenant instead of a tenant.

Use Fresh Manure

MY attention was directed the other day to the case of a rancher near Lankershim—a man who realized the value of stable manure as a soil builder, but knew nothing about the chemistry of barnyard fertilizer.

He had bought up sixty loads of manure from a dairy and had it dumped in one great heap at the rear of his two-acre ranch. I asked him what he was leaving it there for. He replied that he had plowed his ground before buying the manure, so he was going to leave it in the pile at the rear of his premises until fall and then distribute it evenly over the ground. He fairly gloated over having been able to secure such a generous supply of good fertilizer for a low figure..

There is a man who does not realize the necessity of working stable manure into the soil at the earliest possible moment. The man who leaves manure in a heap upon his land is as shortsighted as the fellow who allows it to accumulate at the manure-holes under the eaves of his barn.

Don't Let It Rot in Piles

Whenever manure is left out in the open, in heaps, it immediately begins to deteriorate and lose a great deal of its valuable properties. Manure left in piles anywhere quickly begins fermenting.

Rapid oxidation of organic matter in the manure is produced by the process of fermentation. The matter soon liberates its valuable nitrogen into the air in the form of volatile carbonate of ammonia. This accounts for the pungent smell which arises from old manure piles. In the process of fermentation manure loses a tremendous amount of the soluble plant foods, which would be of great value if worked into the soil.

One of the wisest things a rancher can do these days is to convey manure from the barnyard to the field and work it into the soil with the least possible delay. Where crops are rotated there is always some piece of ground upon which the manure can be spread and although most of the barnyard fertilizing is done in the fall of the year when plowing is in order, it is good business to turn manure under before it has laid on the ground long.

The sun robs it of a great deal of plant food, the air takes up vast quantities of its chemical properties, and every rain that falls causes much of the desirable substance to leach away, thus overfertilizing the field in spots and leaving other sections without necessary nourishment. It isn't a question of how much bulk one works into the soil, but it is a question of what that bulk contains.

Reloading a Bad Practice

Many ranchers mismanage in the handling of manure. It is quite often possible to have an old wagon handy and load the manure direct from the stables to the wagon instead of throwing the manure out upon the ground and then reloading it upon a wagon after it has laid steaming in the sun for several days.

Where the manure is on a wagon it is more apt to be hauled out and scattered than would be the case if it were lying in a heap outside the stable.

The rancher is most fortunate whose stable floors and barnyards are solid earth, or of such formation that suitable drainage is provided. This makes it possible for all the manure to be saved and for the liquids—consisting of valuable plant foods and urine—to be caught and conveyed to the fields.

In dollars and cents the liquids rescued from the barnyard are worth three to four times as much as ordinary barnyard manure is worth. Nowadays many of the farmers are making it a point to conserve the liquids from their stables and utilize them in growing better crops. This is especially true of dairymen.—John M. Sherman, Pomona, Cal.

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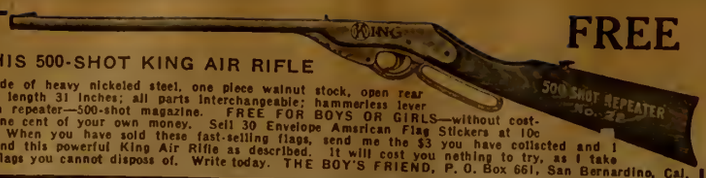

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Live Stock

Calves in Summer

THE calf shows very quickly the effects of poor care, and this often occurs during the summer months because of the pressure of other work, although it is really much easier to keep a calf thrifty in summer than in winter.

Calves grown on farms should have grass pasture provided for them and should be fed some grain, preferably oats, during the first five months of their life.

In taking them from the cow and raising them by hand on skim milk, you are preventing them obtaining butterfat, which is a natural part of the food of a young animal. You must replace this, insofar as it can be replaced, by the use of a grain rich in oil, fed to the young animal on grass, the grass itself taking the place of the butterfat in milk to a small extent.

A calf grown upon skim milk, grass, and a small amount of oats, will be a profitable, healthy, strong and rapidly growing animal, while a stunted calf will require much more feed next winter to get him started towards making good gains.—G. E. Morton.

How Silage Helps

THE passing of the range and the decrease in the fertility of our land have put us face to face with a serious problem. Production can be increased only by the growing of legume plants and by feeding crops to animals and applying the manure to the soil. As fertility is increased, more foodstuffs will be produced.

Silage should be considered by the farmer in the same light that the housewife considers her canned fruit, a provision for future needs.

The advantages of the silo are many, and if these were known to the farmer, more silos would be built. More of the corn crop can be saved by the use of the silo than is saved in the ordinary way. With the best methods, ordinarily about 33 per cent of the crop is lost, and under certain conditions it may far exceed this amount, but with the silo there is no loss except what is caused by fermentation. This is very small.

Any method that will enable the farmer to get more out of his crops will increase the returns from his land. With the silo, our land will return one-third more than without it.—R. W. Clark.

Marketing Cottage Cheese

THE utilization of skim milk by making it into cottage cheese and using the cheese as a substitute for meat has been urged jointly by the United States Food Administration and the Department of Agriculture. Ordinary pasteboard oyster pails make serviceable containers for marketing cottage cheese locally in small retail quantities.

How to Feed Silage

IN planning use of the silage it should be remembered that it is a roughage and not a concentrate. Its bulkiness prevents consumption of sufficient digestible nutrients to insure rapid gains.

With fattening animals the best results will be obtained usually by the use of concentrates with the silage. The amount and kind of concentrates must be determined by their composition and market price.

Grub-stake your home from the farm and garden; the railroads **must** carry food and munitions for soldiers.

Summer Buttermaking

DURING the present food crisis it is of utmost importance that every ounce of butter fat used for buttermaking be turned into a wholesome food product with the least possible loss. The butter maker is cautioned by L. W. Morley of the University of Missouri College of Agriculture to keep the following points in mind:

It is essential to have good milk to begin with. If a centrifugal separator is used, it is not difficult to obtain cream of good quality. The cream should be cooled to 50 degrees Fahrenheit before being mixed with the cream from previous milkings. When sufficient cream has been gathered for a churning, it should stand twelve hours in a temperature of 60 to 75 degrees to ripen. The cream should become thicker and assume a glossy appearance. It should be only mildly sour. Cool to churning temperature (52 to 60 degrees Fahrenheit in summer) and hold for two hours before churning. Too much care cannot be taken to clean churns and utensils and free them from odors. Stop churning when the butter granules are the size of a wheat kernel and drain off the buttermilk. Then thoroughly wash the butter using water of about the same temperature as the buttermilk.

If the butter becomes too soft the wash water may be a few degrees below the churning temperature. Use about three-fourths ounce of salt to a pound of butter. Work sufficiently to dissolve the salt and remove the water, but guard against overworking which gives the butter a salvy texture.

Cheap Goat Milk

A GOOD milk goat will produce two quarts of milk a day, testing 2.3 and 4.5 per cent. The milk is pure white, the cream rises slowly.

Goat's milk can be made into good cheese, but it is not satisfactory for butter production. It is especially good for babies and invalids.

Whether the average goat in America is really more profitable than the dairy cow remains to be proved. At the New York station goat milk was produced at a feed cost of 6.4c per gallon. In experiments conducted at Buffalo, New York, goat's milk was given to 18 children that were not doing well on other foods.

In 17 cases goat's milk filled the bill entirely, some cases showing a very great improvement over the previous condition.

The principal breeds of milk goats are the Saanen, Toggenburg, Nubian and the common American goat.

Pure bred milking does are scarce. The best way for the average farmer to get the milking goat is to build up the common goat by using pure bred bucks of milking breeds.

Swine Disease at Lowest

THE death rate in swine from all diseases for the year ending March, 1918, announced by the United States Department of Agriculture as 42.1 per 1000, is the lowest in thirty-five years, according to the records kept during that period.

This unprecedentedly low rate of mortality presents a great contrast with those of earlier periods, particularly with the losses of 133.8 per 1000 in 1887, 144 per 1000 in 1897 and [illegible] per 1000 in 1914, years marked by severe outbreaks of hog cholera. There is even a remarkable reduction from the normal low rate of losses which has remained slightly above [illegible] per 1000 when the disease was less prevalent.

Mrs. Dugan's Discovery

By Ellis Parker Butler
Author of "Pigs Is Pigs."

WAN day whin Oi was after rummagin' in me cellar, Oi found wan dozen champagne bottles goin' t' waste, an' 'twas a pity t' see thim go t' waste. Oi tuck a look at thim an' Oi seen they was all in good condition, except they was full av champagne-wather. Puttin' th' twilve bottles t' wan soide, Oi went inta th' back yar-r-d, where th' grapevine do be, an' from th' grapevine Oi tuck wan av thim long curly tendrils. A frind av mine so happened t' be th' prisidint av th' United States Steel Company, an' Oi sint him th' long, curly tendril from th' grapevine, an' Oi said, "Wud he mek me a duplicate av it in timpered steel?" Shure, he was glad t' accommydate me, because wance me old man was afther buyin' a share av steel stock from him whin no wan seemed t' want anny.

'Twas not six weeks whin Oi resayved back from th' prisidint av th' steel trust th' timpered steel imitation av th' curly tendril av th' grapevine.

Onta th' upper ind av this, an' crossways, 'twas no thrick at all t' fix a clothespin. Oi thin pressed th' sharp point av th' lower ind av th' steel tendril inta th' cork av wan of th' champagne bottles, an' twisted th' tendril around. Thin, by pullin' sharp upward on th' clothespin, an' th' same time houldin' th' bottle toight betwane me knees—which Oi had covered wid rosin to prevint th' bottle slippin'—Oi drew out th' cork.

Oi laid th' cork t' wan soide an' emptied th' contints av th' bottle down th' drain, excipt wan small tumberful, which Oi drank.

Oi thin removed th' cork from another bottle, an' emtied thp' contints down th' drain, excipt a small tumberful, which Oi also drank.

Oi thin removed th' cork from another bottle, an' emptied th' contints down th' drain, except a small tumberful, which Oi drank.

Oi thin removed another bottle from th' cork an' emptied th' drain down th' contints, excipt a small tumberful, which Oi drank.

Oi thin removed—another drain from th' contints—and—and—emptied th' small cork down th' tumberful, except a bottle—which Oi drank.

Oi thin bottled another small remove—from th' tumbler—excipt a small corkful—which Oi drained—an' contentsed th' drank down th' bottle. Oi thin tankled a bump from 'nother bottle an'—Oi mean Oi dunkled a bump from 'nother copple—you see, me frind, Oi mean Oi drankled a kump—Oi mean Oi cackled a—Oi mean Oi [illegible]—Oi—Oi—well, annyhow, Oi [illegible] t' all thim twilve bottles.

Thim bottles was now all impty, an [illegible] th' house wid wan hand [illegible] counted th' bottles wid th' other. There was twinty-siven left out av th' [illegible]

Thin Oi got me scrubbin' brush an' [illegible] av wather t' clane th' bottles, [illegible] me surprise Oi found Oi cu'd [illegible] th' brush inta th' neck av th' [illegible] Oi therefore turned th' [illegible] siven bottles wrong side out, [illegible] scrubbed thim well, an' turned [illegible] right side out agin.

[illegible] toime th' house was re[illegible] an' Oi sot on th' floor [illegible] th' bottles as they wint [illegible] sixty-four av thim. Oi [illegible] kitchen table an' produced [illegible] th' drawer th' can-opener, on [illegible] av which was a glass [illegible] back carefully t' th' [illegible] in th' cinter [illegible] round me con[illegible] difference t' [illegible] at thim whin they was off their gyuard, Oi was able t' catch thim wan at a toime. Whin Oi had thus caught a bottle, Oi held it firmly down—by lyin' on it—an' wid th' glass cutter Oi cut off th' bottom an' th' neck av it. These Oi put t' wan soide, an' what remained av th' bottle made an excellent lamp chimney.

When Oi counted thim, Oi found Oi had sivinty-two!

What to Feed Baby

FOR a child from two to three years of age, milk should be the basis of the diet, but a number of milk dishes such as creamed soups and vegetables, custards and rice or tapioca puddings may be included in the diet by this time. The important points to observe in feeding a child between two and three years are:

Choose easily digested foods.

Be sure foods are well cooked.

Observe absolute regularity of meals.

Teach the child to eat slowly, to chew his food thoroughly and to drink milk slowly.

The following is a list of foods that may be given: Cereals, well cooked; soups, creamed soups and broths; stale bread or dry toast; an egg, poached or coddled; milk toast; vegetables, as baked potato, spinach, peas and carrots may be given, but should be pressed through a sieve to remove the fiber; fruit pulp, as apple or prune pulp; fruit whip may be given; soft custard, rice pudding and tapioca pudding.

Hours for feeding depend somewhat upon the habits of the household, but between two and three years of age a child may have three regular meals and a mid-morning and mid-afternoon feeding.

Breakfast may be a cereal or cereal jelly with top milk.

Mid-morning lunch—a glass of milk or a slice of stale bread, with prune juice or prune pulp.

Dinner—coddled egg, rice cooked in milk; baked apple pulp.

Mid-afternoon lunch—glass of milk or dish of junket.

Supper—creamed soup with croutons or dry toast. — Mary Pritner Lockwood.

Look Out for Swindlers

IT is reported that swindlers are working a new get-rich-quick scheme, using War Saving Stamps. Polite, well-dressed individuals appear claiming to be postoffice officials and claim that the color of the stamps is to be changed. They are sent to collect the old stamps and will return with new ones of a different color "tomorrow." Tomorrow never comes.

If anybody calls on you and tries to sell you Thrift Stamps or take up yours for return, particularly those who have something to say about a new color, call an officer or notify one as soon as possible.

War Savings Stamps are excellent investments and it is likely that a good many swindling schemes will be tried in connection with them. They should be exchanged for cash only at the postoffice or at the stations provided by law.

It is believed that some of these schemes are being worked by pro-Germans.

Meet the wheat crisis by recognizing it—join the wheatless-till-harvest club.

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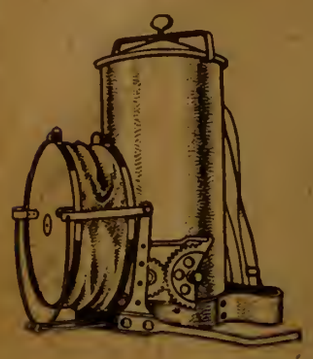

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Read This, Mr. Profiteer

And Then Do a Little Thinking for a Change

ONE of the most forceful and compelling war speeches yet made was that of Dr. Ray Lyman Wilbur, president of Stanford University, to members of Congress and their wives at Washington recently. Dr Wilbur said:

"Three times a day at the table you can fight the submarine, by helping to defeat its object. Its object is to prevent the bringing up of the men, food and supplies needed for the Western front, along the slender thread of ships stretched across the Atlantic and on which the life of this nation is now suspended.

"These are the most momentous days since those of the Man of Galilee. On the other side of the water those fighting our battles look to us and say, 'When will America be ready to put her full force into this war? How long can we hold the line and wait for her to prepare?'

"We must realize that we can no longer send explanations to France and England. We must send food and men and guns. We have not measured up to our possibilities, and the only way we can ask them to go on into more years of bloody war is to show them that we are coming, that our eyes are open to the world danger and that we will see the war through to a final victory, no matter what the cost or how long it may take.

We Came Late to the War

"Americans must face their duty, harsh and disagreeable as it may be. They must realize that they came late into the war because of their inability to see its outstanding features more clearly at an earlier date. We are as yet a great amateur nation, untrained in large world problems.

"We have hoped that Germany would collapse internally, have talked of peace, of starvation and submarine crew mutinies, of strikes, etc., instead of unitedly getting ready every minute of every day. It has been necessary for us to think in new terms. It took us months to see our danger and the danger to democracy and to civilization. We must act faster in the future, or might may win the world. How many Americans realize today that unless we put Serbia back on her feet, every square foot of her territory Serbian territory again, we will have lost the war and Germany will have won it. Germany started this war to get Serbia

Our Pressing Duty

"Our immediate pressing duty is to see that the peoples and armies of Great Britain, France and Italy are fed, so that they will not collapse as Russia and as Finland have done because of the disorganization due to German propaganda, injustice and above all, lack of food. It is imperative that we save and send wheat and other foods absolutely required in Europe during the months before the next harvest. We cannot do it unless we stop using them here. We must realize that food is the weapon with which America is going to be able to maintain a position in this war long enough to win it.

"We are not asking that food be saved to save money, but to save the lives that will win the war Think of our problem when you realize that the limit upon our export of wheat has reduced the bread allowance of the French people to practically two-thirds of that hitherto maintained

Warning to Profiteers

"This is no time to talk of money or of profits, for the world is using a new medium of exchange today, in order to obtain that liberty, freedom and justice which it demands. The medium of exchange is the precious blood of men and boys, the best that we have, and we are sending them by the hundreds, yes the hundreds of thousands. They go forth singing 'As He Died to Make Men Holy, Let Us Die to Set Men Free.' THE MAN WHO COMES OUT OF THIS WAR WITH ONE DOLLAR MORE THAN HE HAD WHEN IT BEGAN HAS TAKEN IT FROM THE BLOOD OF THE MEN WHO DIED FOR HIM. May God forgive him! The American people never will!"

Moving Pictures in War Time

By Mary Pickford

THE United States in war time has many places to turn for help in the great struggle for democracy, but nowhere will she find more heart-whole or zealous assistance than in the motion picture theater and from the player folk of the movies. They are not failing her. Every one of the fifteen or twenty thousand moving picture theaters scattered throughout the country has become a center of inspiration for the spreading of valuable information sent by the Government and a radiating dispenser of good cheer and courage.

The million workers of the moving picture industry, including the players—by no means the least hard working of all—have as one man consecrated their services, and themselves when possible, to their country's need.

My brother, Jack, although under the conscription age, and just beginning a most promising screen career, has sacrificed it all and gone to work for Uncle Sam in his Naval Reserve forces. He is only one of many who have gone from our midst. Nearly every cinema theater, studio, or office boasts its brilliant service flag with one or more of the dearly significant small blue stars.

Besides large personal subscriptions to the Liberty loan, our personal services in the way of leading parades, speaking at Liberty loan rallies, Red Cross drives, and wherever possible, have been freely given. I have been more than a dozen huge military parades in San Francisco alone for the purpose of stimulating recruiting and aiding the Liberty loan or the Red Cross drive.

More than ordinary effort has been necessary to raise the enormous funds used by the Red Cross in their work both here and abroad. Entertainments, bazars, and all sorts of social affairs are constantly being arranged at which the presence of moving picture actresses is an aid in drawing the public

I have often attended as many as 8 or 10 of these affairs a week I have also sent two ambulances to our boys in France, and am at present working among my fellow players to send a complete unit.

Even the little "extra" girls at the studios, who often have barely enough for their own needs, may usually be seen industriously knitting while they await their turn before the camera. When the "smileage books" and theater tickets for the soldiers were placed on sale, these girls and indeed, everybody at the studio bought as many of them as they could afford. In my opinion the morale of an army depends to a great extent upon its moods—and there is nothing like a visit to the theater to give the soldiers new zest in life, and to make better fighters of them.

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ORCHARD and FARM

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Profits in Grapes

(Continued from Page 4)

$1.00 a tree, or say $90 to plant an acre. Grapes at high recent prices sell at about $30 per thousand and planted 8 by 12 feet apart, as is Mr. Dungan's vineyard, stock costs say $14 per acre with grape stakes, the next year costing $25 more.

The thing that has put Emperor grapes in the right place is the ability to ship them in drums, packed with redwood sawdust for the holiday trade, and for considerably later, if necessary. So packed, they can compete with and excel Spanish grapes, packed in cork, which used to control the Eastern holiday market. Whether so packed, or shipped in crates, Emperor grapes are beautiful to look it, nice to eat, and first-class keepers. While it would be possible to produce too many, the fact that olives, figs, oranges, apricots, peaches, plums, Thompson seedless grapes and other crops have many ardent admirers is likely to keep any one of them from attaining too much popularity with growers.

Buying Orange Groves

BUYERS of orange groves have not been discouraged by the effects of the June heat last season, but are coming to the front in the old-time way.

In the vicinity of Los Angeles six groves were sold to ready purchasers within forty days recently, at an average price of $2200 an acre. This is almost up to the very highest valuation for such property in the history of Southern California citrus culture. The top notch price for navel groves is $2600, which was paid for groves in 1914.

[illegible] E. and L. A. Boadway of Pasadena bought the P. D. Bauld grove of twelve acres near San Dimas for [illegible]. The purchase included a [illegible]e residence and the ranch [illegible]ent.

The Boadways also concluded the [illegible] of the Harwood, the Tangerine and the Brubaker orange and [illegible] properties in the San Dimas [illegible], at an average of $2450 an [illegible]. The crop of fruit on the trees [illegible] included.

[illegible] Ontario and Upland district [illegible] Brubaker twenty-five acre grove [illegible] Valencia oranges was [illegible] K. Francis of Alham[illegible] [illegible] cash. The sale [illegible] the residence and the barns [illegible] equipment of the

MONEY SAVING BARGAINS
FOR ORCHARD AND FARM READERS

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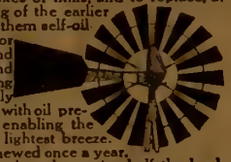

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No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

A League of Nations

By National Master Wilson

THE Grange has long contended for a League of Nations to enforce world peace, and its declarations on this subject one year ago were especially emphatic. By the unforeseen shaping of events we are rapidly approaching the very realization of such an actual league, as nation after nation is arraying itself with the cause of humanity, in a common defense against German aggression and destruction.

Clearly we now witness the supreme struggle of the race—the world's best arrayed against the world's worst. Can there be any doubt of the outcome of such a struggle, and can we hesitate for a moment to throw the full weight of our great organized power into such a cause? Out of such a struggle, grown to its present dimensions, must come the end that peace-loving men have long and fervently hoped and prayed for—the overthrow of war worship, the destruction of the gods of militarism, of force and of mere physical strength, and the exaltation of that code of international morals that shall spell the ultimate peace and progress of a world.

The cost of the present struggle, in treasure and in blood, represents the most frightful price humanity has ever paid to secure an ideal. Thus in the midst of the darkest hour in humanity's history, we catch a glimpse of the dawning of a new day, even the triumph of the very peace towards which Grange energies and Grange hopes have unceasingly been directed, and to whose complete attainment by the only possible means now available, we here and now highly resolve to rededicate all that we have and all that we are. Thus shall real and lasting world's peace be attained and the opportunities of freedom and liberty guaranteed to all people.

Pleased With Our Paper

MRS. ALICE WILLIAMS of Gazelle Grange, Siskiyou County, is very much pleased with Orchard and Farm. She says: "It is a marvel of instructive reading. As it is a California production it more nearly tells of soils, weather and crop conditions that concern the California farmer than papers printed outside, and, therefore, should receive the support of the State's farming class. Perhaps one of the reasons more of the granges have not taken it is because its real worth has not been emphatically placed before them. Then, too, there are so many cheap papers forever sent that many farmers do not realize the true worth of a better class of reading and consequently do not care to investigate or invest the extra price.

"One of my greatest aims as lecturer of our grange has been and still is to try to impress upon the minds of old and young the joy and benefit to be derived from the higher standard farm reading. I would have all trashy story papers, with their editors and authors, put to a more noble work and thus keep many of our girls and boys from wasting precious time. I am for an uplift of farm literature."

"We are all comrades in a great enterprise."—Woodrow Wilson.

Flora's Day Celebration

SONOMA County Pomona Grange was hospitably entertained by Geyserville patrons in an all-day session recently. The celebration of "Flora's Day," which has become an annual event with the good people of Geyserville and their friends in Sonoma County, was the special feature of this occasion.

More than three hundred people enjoyed the manifold pleasures of the day and evening.

In the afternoon a fine program was rendered under the direction of Mrs. Belle Leroux, the lecturer of Geyserville Grange, as follows:

"Star-Spangled Banner," by the audience; Miss Prince at the piano.

Piano solo, Enos Venoni.

Original article on the origin of the Goddess Flora, Muriel Wilkinson.

Reading, "Back in Squasaville," Zelda Leroux.

Reading, "The Vision of Sir Parsifal in Quest of the Holy Grail," Hesaro Wilkinson.

Reading, "Enoni," Zelda Stewart.

Reading, "Seeing Things at Night," Mildred Meyers.

Solo, Miss Broadus, accompanied by Miss Prince.

Paper on the "Jubilee of the Flowers," Flora Smith.

Select reading, Mrs. Everett.

Piano solo, Miss Prince.

Reading, "My Old Maid Aunt," Ada Bosch.

An Age Contest

MRS. DORA H STOCKMAN, lecturer of the Michigan State Grange, suggests an "age contest" as a short entertaining feature for some evening when the Grange program has been particularly [illegible] and describes it clearly this way:

Twenty members are found who are willing their ages should be guessed on and they are then seated in a row, across one side of the hall. Each other member is then given a card, with twenty numbered spaces on which the person is to write an estimate of the respective ages of those on exhibition, making a total at the end. These cards are gathered up after a five-minutes try by a committee who have previously been informed of the correct ages of all the twenty persons. Prizes are given for the nearest to and the farthest from the correct ages, and then the figures on the different cards are read aloud, referring to each "exhibitor" by number, in giving the guesses on his age. If twenty willing ones could not be found, ten might be tried. If age is too delicate a subject, weights might be substituted. The purpose in this case is to break up all formality and close the hour in a merry, everybody acquainted sort of spirit.

The Truth About Rum

ONE of the Pomona Grangers of California expressed the [illegible] exactly, from purely a practical viewpoint of the rum business, when it declared that "whisky is the great evil militating against the efficiency of farm labor and [illegible] the present crisis agricultural productivity can be better speeded up to the desired rate by doing away with the parasite that attacks all [illegible] the industry."

Continued on page 37.

Self-Feeders for Swine

ARE you using a self-feeder for your pigs? It is evidently a mighty good thing. The United States Department of Agriculture conducted two tests with the self-feeder at the experiment farm at Beltsville, Maryland, and the results obtained from these tests show why self-feeders for fattening hogs are gaining in popularity.

In one test 18 grade Berkshire pigs were put on a 70-day feeding period and the relative fattening efficiency of a ration of cornmeal, middlings, and tankage fed with the self-feeder and by the hand method, was compared.

The pigs were kept in a dry lot, the hand-fed lot being fed three times a day, the amount being governed by the appetite. That is, all the feed was given them that they would eat up clean.

The self-fed pigs had free access at all times to the three feeds placed in separate compartments of the self-feeder.

The hand-fed pigs were given a ration consisting of 5 pounds of cornmeal, 4 pounds of middlings, and 1 pound of tankage. They ate a total of 2694.5 pounds of feed and gained 675 pounds, making an average daily gain of 1.4 pounds. It required 410.1 pounds of grain to produce 100 pounds of gain in this lot. The self-fed pigs consumed their feed in the following proportion; 19 pounds of cornmeal, 2.83 pounds of middlings and 1 pound of tankage. They consumed a total of 4.138 pounds of feed and gained 1018 pounds, making an average daily gain of 1.62 pounds. In this lot it required 406.4 pounds of grain to produce 100 pounds of gain.

Self-fed pigs made much more rapid gains by consuming a larger daily ration in proportion to live weight than did the hand-fed pigs, but this rapid gain did not require any more feed in proportion to the gains in live weight. In fact the self-fed pigs required a little less feed to gain 100 pounds in weight.

Pig Clubs Add to Pork Supply

THE 45,000 members of the boys' and girls' pig clubs, says a recent publication of the United States Department of Agriculture, will produce at least 10,000,000 pounds of dressed pork this year, if their work is comparable to those whose members made complete reports last year. This work is judged to be extremely important in meeting the war-time demand for increased food.

The pig-club work has spread rapidly until practically every State is doing more or less of it as a part of the general club work. Twenty-one States have pig club agents employed in co-operation with the Animal Husbandry Division and the States Relations Service of the United States Department of Agriculture.

In view of the great success attending the work thus far, and because of the great need of increasing the production of pork and pork products, the department is seeking to enroll [illegible] boys and girls as "junior soldiers of the commissary" for 1918. It is expected that every boy who can [illegible] will raise one or more pigs for Uncle Sam and thus furnish the meat ration for a soldier.

The Pacific coast, sad to say, is not [illegible] share of this splendid work.

Plymouth Rocks, Wyandottes, [illegible] Island Reds, etc., begin to lay [illegible] when ten months old, if properly [illegible] Leghorns, Minorcas, [illegible] when [illegible] six months old [illegible] the chicks grow [illegible] early maturity.

Open Markets for Hogs

THE question of markets has been one of the biggest problems with which California livestock industry men have had to contend. Practically every center of livestock industry outside of California has the advantage of open markets. While nothing has occurred recently that would indicate that open markets are near, the plan of co-operation by auctions is being given unstinted endorsement. These auctions are in operation in a number of counties having farm advisers, and through them consignors have almost invariably secured top prices for their hogs. Through them, the margain that ordinarily goes to the local buyer is saved.

One of the most important factors affecting California markets is the high percentage of hogs condemned as tubercular. It is doubtful if any markets in the whole country have as high condemnation as San Francisco, Los Angeles and other California points.

Heretofore, the loss occasioned by tuberculosis has been absorbed by the packer, who charged the loss against the total receipts. This has naturally resulted in a lower market for healthy hogs. A plan is being worked out by the California Swine Breeders' Association whereby the individual shipper will stand his own condemnation losses.

Our Farmers Are Patriotic

WHEN the news went around that Uncle Sam needed wheat for the boys on the other side, many a farmer loaded his supply of flour on the wagon and drove off to town. Millions of pounds of flour have been turned in from communities, counties, clubs, mills and dealers on the assurance of the Food Administration that an equivalent amount will go to Europe.

In each of the nine zones created by the Grain Corporation, an executive committee is in charge of handling this flour. They will name assembling points and indicate a flat price to be paid by designated agents who will take care of the business transaction and re-shipment.

Flour in large packages suitable for overseas shipment will be exported immediately. Flour not suitably packed for export will be disposed of locally, and its equivalent sent immediately from the mills.

Every pound that is turned over to the Government will add one pound to the amount exported.

Meat From Alaska

WAR acquaints us with strange foods. Horse meat has been sold on the open market. Whale meat is tinned on the Pacific Coast. Shark is praised by many, and Alaska, rich in resources, has shipped to the United States during the past year 38,295 pounds of reindeer meat. This is about nine times the shipments of 1916, and another year ought to show greater gains. It looks as if reindeer will be added to the list of meat animals that supply the American table.

Eat Less Sugar

BEFORE the war France produced about 750,000 long tons of beet sugar per year, and Italy about 210,000 long tons. Last year the production in France fell to about 210,000 tons, and in Italy to 75,000 tons. Before the war England imported from Germany and Austria-Hungary approximately 1,400,000 tons of sugar annually. These burdens now fall on the United States and its sources of supply. That is why it is necessary to save sugar in this country. This is why it is the patriotic duty of every farmer to plant some sugar beets.

Clean and disinfect the incubators that have been used previously and let them air out before using them this season

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Profit in Liberty Pigs

CAN the California farmer make a profit by feeding pigs for the market at the present prices of feed? This is a question which is in the mind of everyone interested in raising hogs. It is also one which is probably the most debated among all farmers, especially since the Food Administration and the College of Agriculture have asked that the pork production of California be materially increased for contribution to the food supplies of our armies.

Several boys' agricultural clubs have completed their pig-feeding contests within the last few weeks and have furnished strong evidence that hogs can still be fed at a profit. The results were compiled from records made by both high school and elementary school students who live on farms of every type of agriculture from Stanislaus county to Imperial Valley. The boys fed farm feeds, started with weanling pigs, charged market prices for their pigs, feeds, labor, etc., whether they had to pay for them in actual money or not.

The feeds given were everything which a hog will eat, but in all cases grain and tankage or their equivalent, and hay or pasture of some kind were given. In other words, the fundamentals of hog feeding were practiced. There is little doubt that under average conditions profit can be made if those fundamentals are still practiced and if the pigs are of good stock. It has taken the boys and girls of agriculture clubs to demonstrate by "show-me" methods to doubting farmers that a profit can be made from raising the liberty pigs which the farm bureaus have asked us to produce.

It is not intended to criticise or comment at length on these figures except to state that all of them are taken from records, on file in the State leader's office, of the boys and girls who have raised these pigs, and that they have been passed by competent local farmers, who have in each case acted as judges. All of the pigs were sold at public auction at the prices indicated and no regard was taken for their value as breeding animals, though many of the hogs were kept as such.

For conclusions on the demonstration it may be noted that the average cost per pound of gain was 12 cents and that the average total cost was $20.48, which includes the original cost of the pig, feeds, labor, etc., while the average price at which they sold was $16.50 per 100 pounds or one dollar below the present market price, making a return per pig of $33.24 and, leaving a profit of $12.76 per pig. It may also be noted that where the profit was made there was over a pound per day gain with the pig finishing at 201.5 pounds. Farmers can follow the same principles which these boys used and secure the same results. Names and addresses of the boys who secured the results will be supplied on request. Address State Food Administration, San Francisco.

Farmers Buying Trailers

THERE seems to be quite a demand for auto trailers among California farmers, according to information given Orchard and Farm by James M. Litchfield, secretary and treasurer of the Reliance Trailer and Truck Company of San Francisco. J. R. Konetsky, president and general manager of the firm, recently stated that he had made quite a number of sales among the farmers of the State, and that he had received lots of inquiries.

A good trailer can be attached to any make of automobile, will track perfectly and will not jump about. A patented device, operated from the driver's seat, can be provided to back the trailer in any direction. The drawbars are equipped with shock absorbers and compression springs. This eliminates any danger of injury to the pleasure car or truck.

How to Make a Henhouse

WHEN the soil is well drained and consequently will remain dry no floor need be used in the poultry house, the ground itself serving as the floor. Often a slight dampness can be corrected by filling up the floor several inches above the outside ground with sand, cinders, gravel, or dry dirt. Three or four inches of the surface of the floor, and of the run, if a very small run is used, should be removed and replaced with fresh dirt two or three times a year.

If the ground is so wet or damp that this condition cannot be corrected by filling it is best to provide a board floor, as this will help to keep the house dry, will allow easier cleaning and will promote the general health and welfare of the hens.

A house with a board floor should be set on posts or blocks, so that it is 5 to 12 inches above the ground. When this space is left the floor will not rot so quickly and rats are not so likely to take refuge under the house.

In order to keep the flock in a clean and sanitary condition, dropping boards should be provided and roosts above them. This makes it easy to remove the droppings each morning and helps greatly to keep the house free from objectionable odors. A little sand or ashes sprinkled on the dropping board after each cleaning will be found to make the cleaning easier.

The dropping boards and roosts should be placed against the back wall.

The dropping boards should be about 20 to 30 inches from the floor, depending on the height of the building. This gives space enough under them so that the hens have room to exercise and is not too high for the heavier hens to fly up to.

The roosts should be 3 or 4 inches above the dropping boards. If more than a single roost is used, they should be on the same level; otherwise all the hens will try to crowd upon the highest roost. A piece of 2 by 4 or 2 by 3, laid on edge and with the upper corners rounded off, makes a good roost. A pole, or even a piece of board 2 or 3 inches wide, may be used.

The 1918 Strawberry Pack

THE last carload of strawberries has been shipped from the Sacramento Valley for the season. The strawberry pack this season has been of interest in more ways than one. Perhaps the most noticeable has been the innovations as a result of amending the standardization law. The results obtained have been uniformly advantageous: growers have received a better price for their berries, dealers and consumers have received a better article, and shippers of California berries have been enabled to secure a product that could meet and hold its own against all competition.

George Bryant, representing the Ryan Fruit Company, one of the biggest of our fruit jobbers, in commenting upon this season's pack stated that, taken from all points, the present season has been the most successful that his company ever has had. This, he said, is due entirely to the new standardization regulations. Without such rules for packing it would have been absolutely impossible to have secured such large quantities of berries which would hold up under shipment.

Just what significance this has for the strawberry growers is perhaps not generally appreciated. California berries ripening around the latter part of May come into competition with the early berries from Oregon, Washington, and also Missouri. Without the high standard which the new regulations have required, buyers would have refused to handle these later berries and the growers would have been forced to sell them to the canneries, which would have resulted in a reduction of 50 per cent or more from the prices received.

Mormons Empty Their Granaries

MORE than a quarter of a million bushels of wheat have been turned over to the Food Administration from the Mormon wheat storehouses in Utah, which are now being swept clean for the first time in more than thirty years.

This represents the enormous reserve supply built up under the tithing practice to protect the people against any emergency.

Did You?

DID you give him a lift? He's a brother of men,
And bearing about all the burden he can.
Did you give him a smile? He was downcast and blue,
And the smile would have helped him to battle it through.

Did you give him your hand? He was slipping down hill,
And the world, so I fancied, was using him ill.
Did you give him a word? Did you show him the road,
Or did you just let him go on with his load?

Do you know what it means to be losing the fight,
When a lift just in time might set everything right?
Do you know what it means—just a clasp of a hand,
When a man's borne about all a man ought to stand?

Did you ask what it was—why the quivering lip?
Why the half-suppressed sob, and the scalding tears drip?
Were you brother of his when the time came of need?
Did you offer to help him, or didn't you heed?

To Pickle Olives

THESE directions are suitable for preparing small quantities for home use.

Gather the fruit carefully by hand without bruising. It is best when cherry red or just turned black. When green, it lacks flavor and oil, and when over-ripe, it is too soft and the skin is tough. Soft, shriveled, or frost bitten olives are unsuited for pickling.

Place the olives in an open vessel of glass or earthenware, or a wooden bucket or barrel. Metal vessels should not be used. A wooden cover to fit loosely inside the vessel on top of the olives will prevent the spotting of any olives which float.

Make a lye solution of three ounces (three tablespoonfuls) of soda lye to a gallon of water or approximately one pound to five gallons.

Watch the Lye

Cover the olives with this solution keeping them submerged by means of the wooden cover. Stir and examine the olives every hour. As soon as the skin changes color, cut an olive occasionally to note by the discoloration of the flesh how far the lye has penetrated.

When the lye has gone through the skin but only a very short way into the flesh, pour it off into another vessel. This will be in from three to eight hours, according to the olives and the temperature.

Expose the olives to the air until the color is darkened and equalized. They should be stirred frequently while exposed. To make them all black requires from one to three days or more, but the flavor is better if not exposed too long.

When the desired color is attained replace the old lye by fresh lye and leave with frequent stirring until it has penetrated to the pit. It must reach the pit or the olives will be bitter, but if left long after reaching the pit the flesh will be softened and the color bleached.

Replace the lye with water which should be changed twice daily, until all taste of lye is removed—about five to seven days.

Then place for twenty-four hours in a brine of five ounces (five tablespoons) of salt to a gallon of water.

Seal Up Hot

Then heat olives and brine to boiling and pour hot into scalded jars or cans. Cover and seal and place in a pot or washboiler sterilizer and heat for one hour.

N. B.—Certain olives, such as Manzanillo, darken easily when aerated even if they are somewhat underripe. Others, such as Mission, will not darken if under-ripe unless exposed for a very long time. Over-exposure injures the flavor. It is better to be satisfied with imperfect color than defective flavor.

Before sterlizing under "10" the brine may be poured out of the jars or cans which are then sealed immediately while still hot and sterilized as above. They keep quite as well without the brine.—Frederick T. Bioletti.

California Leads in Onions

ACCORDING to the United States Crop Reporter, there were 9[illegible] acres planted to onions in California in 1917. This acreage was exceeded only by the State of New York, where there were 9800 acres. While the acreage in New York was 800 more than in California, the percentage of production was much heavier in California, being 93 per cent normal as against 62 per cent in New York. It was estimated that the production in California in 1917 amounted to 3,348,000 bushels, as against 2,891,000 bushels in New York.

This year there is an increased onion acreage in California but weather conditions have been somewhat against an increased crop.

Good crops are brave promises to the Allies.

Federal Farm Loan Bonds

Supply Funds to Finance Farmers

The Federal Farm Loan Act has these big, vital, national purposes

TO PROVIDE CAPITAL FOR AGRICULTURAL DEVELOPMENT.
TO CREATE STANDARD FORMS OF INVESTMENT BASED UPON FARM MORTGAGE.
TO EQUALIZE RATES OF INTEREST UPON FARM LOANS.
TO FURNISH A MARKET FOR UNITED STATES BONDS.
TO CREATE DEPOSITARIES AND FINANCIAL AGENTS FOR THE GOVERNMENT.

IN carrying out these purposes Federal Farm Loan Bonds offer safe and sound long term investments for the thrifty, based on the assembled farm mortgages of America; increase farm production, and make it easier for farm tenants to buy and own farms.

Federal Farm Loan Bonds are issued by twelve regional Federal Land Banks. These banks and the entire system are examined, supervised and operated by the Federal Farm Loan Board, a bureau of the Treasury Department at Washington. Every Federal Farm Loan Bond is the obligation of the Federal Land Bank which issues it, and also of all the other eleven Federal Land Banks. Every Federal Farm Loan Bond is based upon massed and aggregated farm mortgages pledged as security. No mortgage is made for more than fifty per cent of the value of the farm as fixed by a Federal Land Bank Appraiser appointed by the Federal Farm Loan Board in Washington. The Treasury motto on farm loans is "safety first."

All loans are made through cooperative organizations of farm borrowers, termed National Farm Loan Associations, very similar in character to city building and loan associations. Each mortgage is guaranteed by the Association. In addition to the security of the farms themselves, each mortgage is backed by the resources of all the twelve Federal Land Banks, including a cash subscription by each association to the stock of the Land Bank equal to five per cent of all loans, and in addition thereto there is a five per cent double liability on the part of the borrowers. No farm loan security has ever been offered so strengthened and buttressed by Government inspection and control, and such adequate resources back of the obligations.

Federal Farm Loan Bonds bear five per cent interest, payable semi-annually, May and November, and, in the language of the Federal Farm Loan Act, "shall be deemed and held to be instrumentalities of the Government of the United States, and as such they and the income derived therefrom shall be exempt from Federal, State, Municipal and local taxation." It will be noted that this exemption is complete. Interest on these bonds need not be included in income tax returns. These bonds are issued in denominations of $25, $50, $100, $500 and $1000 and in either coupon or registered form. They are due in twenty years and redeemable after five years.

The buying of Federal Farm Loan Bonds is not only a profitable transaction but is a patriotic act. This system enables the small farmer to borrow money on terms as favorable as the large farmer. For the first time in the history of American agriculture the farmer, through the issue of Federal Farm Loan Bonds, is enabled to secure the capital which he has so badly needed.

All mortgages issued under this Act are paid off in installments, so that with every interest payment there is paid an installment of the principal, and when the last interest payment is made the mortgage is extinguished. Each mortgage grows smaller year by year and the security is to that extent rendered greater. The standard form of mortgage now prevailing runs for thirty-five years, and the first effect of the taking out of a mortgage in the Federal Farm Loan System is to put the farmer in easier circumstances so as to enable him to extend his operations, become a greater producer, buy more machinery, intensify his farming, supply himself with livestock, and otherwise take a stronger financial position. He becomes a better customer of the bank, of the store, and of the manufacturer.

Money is loaned under this system only for certain specific purposes, all connected with the development of agriculture. Land owners who rent their farms out cannot borrow under the Act. The financial pressure of the system is exerted always in the direction of strengthening the position of the actual farmer as against the landlord. Loans may be made for the following purposes and for no other:

To provide for the purchase of land for agricultural uses.

To provide for the purchase of equipment, fertilizers and live-stock.

To provide buildings and for the improvement of farm lands.

To liquidate certain outstanding indebtedness of the farmer.

Such operations as the provision of necessary buildings, machinery, seeds, clearing, tiling, draining, fencing, etc., are carried on by farmers borrowing under this system on a large scale, and always with increased farm efficiency in view. The farmer who has financed himself through a Federal Farm Loan mortgage is at once relieved of anxiety as to the falling due of his mortgage. He knows exactly what he can do for thirty-five years in the future. The interest rate to him at present is five and one-half per cent per annum, plus a one per cent amortization charge, so that by the payment of six and one-half per cent per annum his loan is extinguished in thirty-five years.

Lack of capital and lack of skilled, reliable labor are the two greatest drawbacks to agricultural progress. Federal Farm Loan Bonds are doing their part to remove both these obstacles. With sufficient capital, labor-saving machinery and up-to-date equipment, will come a great increase in the farmers' productive power.

Whatever increases the earning power of the farmers of your community directly contributes to your own prosperity. The Federal Farm Loan System then is your affair as it is that of every American citizen. Put your shoulder to the wheel and start the sale of Farm Loan Bonds in your community. Buy as many yourself as you can afford and talk them to your friends and neighbors.

Federal Farm Loan Bonds are printed in the Bureau of Engraving and Printing in Washington, and have the same protection against counterfeiting that is enjoyed by the currency in your pocketbook.

In the language of the Farm Loan Act, Federal Farm Loan Bonds "shall be a lawful investment for all fiduciary and trust funds and may be accepted as security for all public deposits." You can offer your banker no better collateral.

You can buy Federal Farm Loan Bonds at 101 and accrued interest. Order through any bank, trust company, broker or express agent, or write to any one of the twelve Federal Land Banks:

Springfield, Mass.	Louisville, Ky.
Baltimore, Md.	New Orleans, La.
Columbia, S. C.	St. Louis, Mo.
St. Paul, Minn.	Houston, Texas
Omaha, Nebr.	Berkeley, Calif.
Wichita, Kans.	Spokane, Wash.

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or address:
FEDERAL FARM LOAN BOARD
TREASURY DEPARTMENT
WASHINGTON, D. C.

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Model S-25

SAMSON GMC TRACTOR

TRACTORS TRACTORS

10 H. P. on the Draw Bar—25 H. P. on the Pulley

The Samson Sieve-Grip Tractor embodies all the features which years of painstaking effort and experience have approved. It is not an experiment. It is a demonstrated success of years' standing. Its enthusiastic owners are numbered among nearly all civilized nations on the globe.

In construction, it is very simple. In strength, all that its name implies. Built to meet the most exacting demands, day in and day out.

Its Sieve-Grip steel wheels, skeleton-like in construction, give greatest traction with least weight. They do not slip. They do not pack the soil. They assist cultivation.

Its Nodust-Moisto-Rizer cleanses all air entering carburetor and crank case vent. All working parts of the motor are protected from dust and grit.

Its Lubricated Roller Pinions reduce friction to a minimum. They deliver maximum power to the drawbar.

Its ball and disc type Governor assures simplicity of operation and prevents racing of the motor. Adjustment can be made from the driver's seat to secure any desired set speed, regardless of load, up to the tractor's maximum capacity.

We court the most rigid investigation.

It will be our pleasure to give you a demonstration at any time, without obligation on your part.

Ask an owner or write us for information.

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Division of
General Motors Corporation,
Stockton, California.

Daily Milk Record Sheet

For Ten Cows, Size 10 ins. by 17½ ins.
6 Sheets for $ .25, Postpaid 25 Sheets for $ .75, Postpaid
15 Sheets for $ .50, Postpaid 50 Sheets for $1.25, Postpaid
100 Sheets for $2.00, Postpaid

If you have ten cows or less, you will need one sheet a month; for 20 cows, two sheets a month; for 30 cows, three sheets a month, etc.
Each sheet contains record of the morning and evening milking for ten cows for 31 days, with a space for the total month's produce of each cow.

ORCHARD AND FARM
Examiner Building, Los Angeles, Cal.

Evils of the Single Tax

(Continued from Page 3)

potato comes from, whether it grows on a tree or whether it is concocted by a French cook in the kitchen of some high-class hotel. These gentlemen, under those conditons, taking their inspiration from such surroundings and, inhaling sewer gas instead of fresh air most of the time, get a kind of lopsided view of life, and they embrace the Single Tax. This idea was born among such artificial surroundings. It is the product of the cities, not of the country, where there is room enough for men still to regard their fellow-beings as associates; where there is a reasonable amount of sunshine and fresh air and enough to eat. But from there it has spread. It has become a sort of fad. It is a disease. They get it and have it all their lives and die of something else.

Mr. North states that nearly all the opposition to Single Tax comes from the interests of monopolies and speculation. He is mistaken. It comes from all who happen to own anything, from a small city lot to a farm or ranch—all who happen to have accumulated any land which they may call their own. It is also being fought by the great masses of the people who are opposed to public confiscation of property and its seizure by the American Bolsheviki.

Will Not Help Food Production

The proponents of this measure have a new battle cry, a cry of "Food will win the war." They argue that food comes from the land, and that there are 20,000,000 acres of idle land in California, that Single Tax will produce food on this idle land. Mr. North states that Single Tax will cause this land to be thrown open to settlers and to cultivation. Does he mean that by placing an additional burden of taxes upon the land that it will become more attractive to settlers? Does he mean that Single Tax will so attract people to California that we will increase our population to the extent of settling up all of our idle acres? We think not. How then will Single Tax be the means of producing more food?

Single Tax is not in force in any State in the Union, although they have attempted to force it upon the people in a dozen States during the past twenty years.

Vancouver's Experience

The experience of Vancouver, British Columbia, where the Single Tax is now in force, may be interesting to the reader of Orchard and Farm. We quote from a speech made by Hon. F. C. Wade before the convention of the National Tax Association in April of this year. Mr. Wade is one of the leading lawyers of Canada and was one of the Canadian commissioners in the conference between the United States and Canada over the Alaskan boundary question. Among other things, Mr. Wade stated:

"Before discussing our tax problem generally, it is advisable to clear the way by getting rid of the rubbish which still encumbers it. It is scarcely necessary at this stage to expose the fallacies of the so-called Single Tax, which is largely responsible for the present deplorable conditons. So long as the land boom lasted, we were assured that all our abnormal prosperity was due to the magic of Single Tax. Single Tax is still with us, but not so the days of colossal bank clearings, fabulous building permits, and stupendous prices for real estate. Building permits, which reached their climax in 1912 at $19,388,322, have fallen to $2,412,889, including alterations and repairs.

Enormous Tax Arrears

"Tax arrears which were $510,106 in 1912 had grown to $4,219,211 in 1916 and are now at the alarming figure of $5,038,537. The mill rate, which was not to be increased under Single Tax, rose from 16 to 18 between 1895 and 1905 under a 50 per cent exemption of improvements; to 20 mills under the 25 per cent exemption from [illegible] to 1909; to 22 mills in the period from 1913 to 1916; to 24.44 mills in 1[illegible] and now a higher mill rate is freely talked of as a probability. According to the assessor's figures, land values shrank from over $150,000,000 in 1913 to $139,000,000 in 1916; but, as Dr. Haig states in his report, the assessor's values should in many cases be cut in two, and I would add that in some cases they should be cut in four. Vancouver's population, according to the official figures, fell from 122,[illegible] in 1912 to 95,922 in 1916, a decrease of 26,178, or more than one-fifth. It is gratifying to note that with the establishment of shipbuilding and general increase of business we have gained about 6500 in our population since 1916. The only increase has been in the debt, which rose steadily from $22,500,000 in 1912 to nearly $31,000,000 in 1913 and $40,000,000 at the present time. The record has been much the same in all the Western provinces where the so-called Single Tax obtains, while nearly all Eastern cities and towns which have not had the supposed benefit of Single Tax magic have grown steadily in population, building permits, bank clearings and all the other evidences and concomitants of prosperity.

Hard on Ratepayers

"Let us try to realize the financial situation of the city. Even if we have a population of 102,422 at the present time, it must not be imagined that all these pay taxes. Under the enlightened system which prevails only landowners contribute to the city exchequer, there are only 23,870 taxpayers in Vancouver entitled to vote on money by-laws as landowners, and of these a great many are repeaters. On a generous estimate there are only 22,000 taxpayers to meet the annual levy for carrying on the administration and upbuilding of the city. With a tax levy of $4,369,000 and tax arrears of $5,038,537, our position would be serious enough if spread over the present estimated population of 102,442; but as I have shown, there are but 22,000 taxpayers to shoulder the burden. What that burden is few of us realize. To meet the levy of a Single Tax would must cost each ratepayer approximately $200. To pay off last year's taxes and arrears, without counting interest of percentages, would cost each ratepayer more than $427. Those who advocate tax sales and other drastic remedies to clear up the situation should pause when confronted with the fact that to square up all accounts and start with a clear sheet would mean that the ratepayers would have to make an immediate payment of $427 per head, to be followed by an annual payment per head of $200 more.

A Warning to California

"What is the remedy? The Single Tax advocate says the only course is to continue to add to the burdens of the landowner.

"It makes no difference that land as land needs few or none of the expensive safeguards of city administration, while all forms of business are dependent upon fire and police protection, roads, pavements, light, power and everything else; exempt all forms of industry and business and tax only the land, the one commodity which for some years has been unmerchantable, a drug on the market, and in many cases a liability instead of an asset to the owner. Go on flailing the dead [illegible], but spare anything that is productive and that can afford to pay its share for the benefits it receives from the community.

It seems to us that we should profit by the experience of our neighbors to the north, which is facing a similar condition caused by the Single Tax.

Do the people of California, particularly the farmers, want a similar state of affairs? Do they want to experiment? I say emphatically, [illegible]

4-Row Bean Cultivator

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Conserve Man Power

One man will cultivate four rows of Beans perfectly with this cultivator, which, like most of our implements has been developed at the request of Dealers and Ranchers for a strong, simply controlled cultivator, capable of doing their work better than would be possible with a lighter tool. The frame is one piece of high carbon steel (no joints to work loose or sag), holds the wheels always true, and in line with the rest of the machine. The double frame bar gives ample clearance between the standards and eliminates the tendency to clog in trashy ground. This frame bar has a double lifting device which holds it rigidly on both sides. The steering device is easily operated and very accurate. Equipped with KQ Sweeps of our own design and made to do the best work and wear the longest. Furnished with either Tractor or Team Hitch and to cultivate rows of any width from 20 to 36 inches.

ALSO BUILT TO CULTIVATE TWO ROWS.

The Killefer Manufacturing Company

2209 SANTA FE AVE. LOS ANGELES, CAL.

Benefits of the Single Tax

(Continued from Page 3)

we leap to them, or they fall upon us, suddenly! Why should we fear the too sudden coming of social justice and righteousness? In the face of that advancing wall of German hate and tyranny, with Paris already under gunshot as these lines are written, let us lay aside our fear—and our selfish interests—and ask only, "What is the right and just thing to do? What is the nation's greatest need?"

Increased, unlimited production! is the answer.

How can this quickest and best be achieved?

By opening all the unused land to the millions of settlers who will stream here as soon as it is known that California land can be had for prices that will make it easy to pay for the land out of the crops grown upon it.

Will that injure the farmers already established here?—to increase the population rapidly?

The farmer's good is not a thing apart from the general welfare; it rises or falls as prosperous times or adversity come to the whole State. Will not the whole State be enormously benefited by a great influx of actual settlers? Will that influx depreciate land values?

For the first time in California we shall have tangible stable values, based on use! Land has no other honest value save that of usefulness—What can be produced from it, what business can be done on it, what rent will a storekeeper, a cultivator, or a homebuilder pay for the privilege of possessing and using it? Do you think this value will decrease as population increases?

All Tax Burden on the Land

No one really thinks that, though it is one of the arguments against Single Tax, that when this rental value is diverted from private pockets to the public treasury land values will fall so low that the State will have no source of income. Is that reasonable? And even if it were possible for water to run up hill of its own accord, that is to say, for population to increase without enhancing land values, it would only be necessary to raise the rate.

So, then, Single Tax is going to throw all the tax burden on the land owner, and since farmers are the largest land owners, the weight of the tax burden will rest on his already over-weighted shoulders!—that is Anti-Single Tax logic.

It purposely or thoughtlessly overlooks the city lot under the ten-story building. What part of the tax burden will that bear?

The Single Tax is not on area or acreage, but on value. The farmer has much land, but little value of land. The big values are in the crowded cities where population is densest—and in the great estates running from 50,000 to 700,000 acres. These are the values that will pay the great bulk of the public revenue under the Single Tax—and these are precisely the interests which have organized in California as Anti-Single Tax Leagues.

The California farmer's relation to taxes and land value cannot be much different from those generally prevailing, and these are well illustrated in the following conversation between the late Tom Johnson of Cleveland and Congressman Pierson:

"How much, Mr. Pierson, of the present tax burden do you think the farmer bears?"

"Well," he answered, "the farmers constitute over half the population of the United States, and I should say that they pay at least 60 per cent of all taxes."

"Very well, let's call it 50 per cent to be safe."

"No, no," said Mr. Pierson, "that is too low; they pay more than 60 per cent rather than less."

"All right, but to be safe, let's call it 50 per cent. Now, Mr. Pierson, I want you to tell me how much of the value of land the farmers of the United States have? Please take into consideration all the valuable coal lands, the iron, silver, gold, copper and other valuable mines—the water power privileges, the railroads and their terminals, including street railroads, telephones and telegraphs, for these are built on the most valuable lands; all the gas and electric lighting rights of way, built on land of great value; all the city lots, some of which are worth more than a county of farming land. I want you to take all these into consideration and then tell me how much of the land value the farmers of the United States have."

Would Reduce Farmers' Taxes

Mr. Pierson said, "Well, I should say less than 5 per cent."

Johnson said: "Call it 10 per cent, to be safe."

"Oh, no, no, that entirely too high; that's double."

"Well, we will call it 10 per cent, anyway. Now, don't you see that if all the taxes were raised by a single tax on land values, since the farmers have only 10 per cent of those values (you say 5), their taxes would be reduced to only one-fifth of what they are now?—that instead of paying one-half the taxes as now, they would under that plan pay but one-tenth?"

"I declare, Tom, I never looked at it in that light, and I guess you have got me."

Consider the motive, the interests, or the misunderstanding of anyone who tells you that Single Tax would throw the tax burden on the farmer. It is a tax on rent collecting and land speculation. It will untax the farmer, his house and barn, his tools, stock, household goods and auto. It will tax only his land value, which is determined only by the nearness of his acres to the centers of population.

The value added by plowing, ditching, leveling, or cultivating—any value made by human labor—is an improvement, and all improvements are untaxed.

What, you're not going to tax the ten-story marble office building!

No; we want more of them; we want to encourage buildings; the more of them there are in the city the more prosperous will be your farm. Besides, the owner of the tall building never paid any taxes on it; he passed the levy along to the tenant, adding that much to the rent.

Single Tax will untax all useful business and occupations and will raise public revenue by taking only those public values of land which are due solely to the presence of people. It will not, by the terms of the proposed amendment, take all that value, but only enough to administer public affairs. In the case of small holdings of used land this will be nominal. In the case of the vast idle estates and the enormous downtown values, it will be considerable, enough immediately to inaugurate in a gradual and unanimous way the removal of what Woodrow Wilson has so well called the "Economic Barriers" which now hold man from the natural opportunities for self employment, from free and easy access to the source of all human supplies and forbid him that individual "Self-Determination" which is now the sacred and avowed purpose of the Washington administration, backed by the loyalty of the country, to establish among nations and man.

It will cause no confusion in any department of the public service. The machinery for assessing and collecting the land values tax has been in operation for many years. It works smoothly. Single Tax will not disturb it. The assessors and collectors of improvement and personal property taxes will be dropped from the pay roll. What other "confusion" can ensue, and to whom?—save to the speculators and promoters of idle acres!

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I can show you the best uses to which your land can be put. I examine soil with the view of telling farmers what crops can be grown most abundantly. Definite knowledge of physical and chemical character of land, knowledge of origin, composition, properties and functions of soil and relations of crops will enable you to plant for far greater crop productions. Every owner of land should have this information. Let me help you. Write today for instructions as to taking samples for analysis in my laboratory.

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TUMORS, WENS AND ALL BREAST LUMPS TREATED

Strictly a non-operative treatment. NO KNIFE. NO BLOOD AND WITH LITTLE OR NO PAIN. Our method of application positively kills every particle of diseased tissue.

REMEMBER that danger signal is a sore that does not heal or the rapid increase of growth in a lump, wart, mole or scab which may have been present a long time. If these conditions appear in an individual over 40 years of age they are NEARLY ALWAYS OF A MALIGNANT NATURE and should be given immediate attention.

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For the Farm Woman

Edited by Ruth Roberts

MY Dear Readers: I want more letters from you informing me as to whether you are pleased or disappointed in our page. What is there that I can add to interest you individually and collectively? Let me know, and I will follow your requests to the best of my ability.

I stand ready to answer any questions you may wish asked, either through these columns or privately, and any little hints that are of value to you in the care or feeding of your families I will be glad to publish that others may be benefited also.

We are all especially interested nowadays in wheat-saving, meat-saving, economical recipes or any saving about the house or cooking that will help to win the war.

We are warned that we must save voluntarily or the Government will be obliged to save for us by the food card and restriction plan, and it has been proved by its use in our schools that the honor system is a much more pleasant means of ruling and being ruled than complete freedom with a system of punishments for breaking the laws.

So let us all do our part. How can we refuse when we stop to consider how small a sacrifice it is, compared to the great sacrifices of so many around us, and pray God that with the help of each son and daughter of this great country the war may be brought to an early and victorious end. RUTH ROBERTS.

Oatmeal Bread

POUR two cups of boiling water over two cups of rolled oats. Cover and let stand until lukewarm. Dissolve one yeast cake and one-fourth cup of brown sugar in one-half cup of lukewarm water, and two tablespoons of lard or butter substitute, melted, and add this to the oatmeal and water. Add one cup of flour or enough to make an ordinary sponge. Beat well. Cover and set aside in a moderately warm place to rise for one hour or until light.

Add enough flour to make a dough—about three cups—and one teaspoonful of salt. Knead well. Place in a greased bowl, cover and let rise in a moderately warm place until double in bulk—about one and one-half hours.

Mould into loaves, fill well greased pans half full, cover and let rise again for one-half hour. Bake forty-five minutes in a hot oven. One-half cup of chopped nuts may be added.

Ruth Roberts Suggests

AFTER boiling salt beef, leave two or three carrots in the water or liquid until cold. The carrots absorb the salt and the liquid may be used for soup.

Fruit juices may be canned or bottled when left over, without sugar, and used later as needed by combining with gelatine. Leftover fruit juices may also be used in lemonades.

To brown pies and tarts, use a small brush and brush them with milk before putting them in the oven, and to glaze pies, brush them with the white of an egg if you wish them to be a shiny brown.

Salt often curdles milk. Hence in preparing gravies, porridge, etc., add salt the last thing.

In cooking vegetables, cover those that grow under the ground, as onions, etc., leave uncovered all vegetables that grow above the ground.

When jellies ferment, reheat, add a little sugar and water and thicken with cornstarch for hot sauces. To serve cold, follow the above directions, but instead of the cornstarch, add one-half teaspoonful of gelatine that has been first soaked in cold water and then dissolved in hot jelly.

The Fourth of July

"This hand to tyrants ever sworn the foe
For freedom only deals the deadly blow;
Then sheathes in calm repose the vengeful blade,
For gentle peace in freedom's hallowed shade."

Another Independence Day and God grant that now with our valiant boys fighting in France, and the rest of us working and giving at home, the day may be close at hand when we can declare our victory and everlasting peace.

Have you ever felt the depression that comes to those left at home when some member of the family or friend goes away for a holiday or to take up a residence in some other place?

Nothing can drive off for those first few moments this little feeling of downheartedness and most of us hurry about our duties, a little shame faced and anxious to be rid of our blue devils.

And now that our men are leaving homes in the country and in the cities this depression will come to all those left behind. And it is not foolish or silly this time only in the fact that no good can come of allowing these feelings to engulf one.

Remember the cure is the same. Work and play with all your might. The Red Cross calls for more and more workers—there are not half enough—auxiliaries can be formed in any place where a number of women can get together.

Knitting is a fascinating work for old and young, and if wool is not to be had use cotton cord and make wash rags or dish rags. Even if the Red Cross does not happen to need these things you can Hooverize by making them for your own home and for your friends.

And while we go about our monotonous duties, such as dish-washing, housecleaning or hoeing, let us let our minds dwell upon tasks and pleasures for the future. the books we are reading or upon anything but the [illegible] of the world and [illegible].

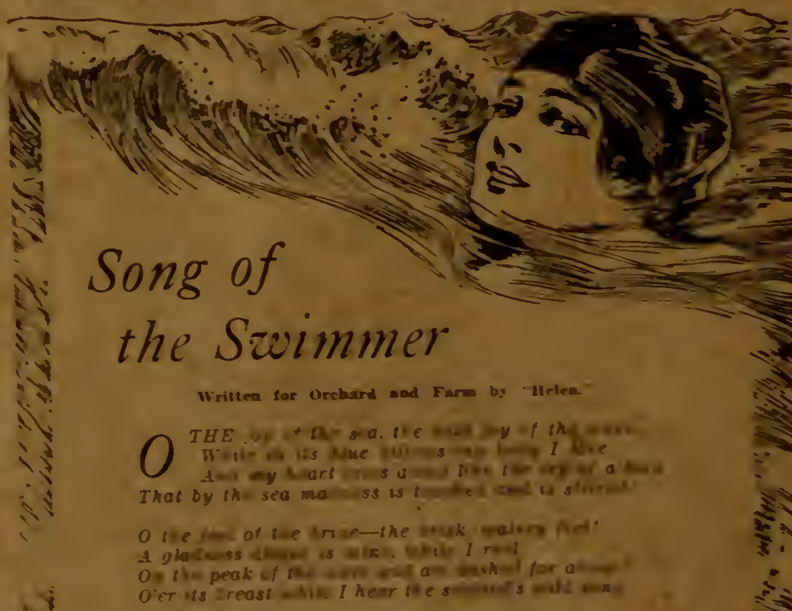
For the worst of all [illegible] is this [illegible] tendency we all have to fear the worst.

So be of good cheer. We will not starve and the boys will come marching home before you know it.

Let's not be [illegible] and sullen over the great big [illegible], but [illegible] or [illegible] stronger and ready for the wonderful things in store for us.

[illegible]
[illegible]
The [illegible] I [illegible] with [illegible] [illegible]
Nor [illegible] the [illegible] that [illegible] along the way."

Increase the world's bread [illegible] by growing [illegible] and eating less.



Song of the Swimmer

Written for Orchard and Farm by "Helen."

O THE joy of the sea, the wild joy of the waves,
White on its blue billows was [illegible] I love
And my heart cries aloud like the cry of a bird
That by the sea madness is [illegible] and is stirred!

O the [illegible] of the brine—the [illegible] watery feel!
A gladness [illegible] is mine, while I reel
On the peak of the wave and am dashed far along,
O'er its breast while I hear the seabird's wild song.

Up, up it now bears me; I swim on elate
And I catch a far glimpse of the [illegible] so great
Then shoreward I [illegible] at the white [illegible] sands,
And the folk on the beach [illegible] friendly hands.

One anxiously calls me above all the [illegible] roar,
"Come out of the danger—the tide bears off shore"
But I laugh and strike out [illegible] free,
For my joy in the world's like the joy of the sea!

Chocolate Bread Pudding

SCALD one pint of milk, add four tablespoonfuls of chocolate that has been melted over hot water, one tablespoonful of butter, or butter substitute and one-third cup of sugar. Pour over one and one-half cups stale bread crumbs and beaten yolks of two eggs. Turn into greased pudding dish and bake about one-half hour. Beat the whites of two eggs very stiff, add two tablespoonfuls of powdered sugar and one-half teaspoonful of vanilla. Spread over the top of the pudding and place in oven until [illegible] to a light brown. Serve [illegible] or cold.

Every Egg Counts

BIDDY [illegible] raise her chicks [illegible] to feed a soldier, but when duty calls, she's game. Every egg counts [illegible] to be [illegible] and [illegible] a second "[illegible] army" for [illegible] and [illegible], or to [illegible] storage until [illegible] the seasonal [illegible] supply.

When the war is over there will be only two kinds of men left—the men who did and the men who didn't.

Army and Navy Sweaters

DIRECTIONS for [illegible] the [illegible] sweaters [illegible] are [illegible] lows.

Four hanks of khaki knitting [illegible]. Cast on 72 sts. K 2, P 2 [illegible] Knit plain until sweater [illegible] 25 inches [illegible] 9 inches in width. Knit 24 [illegible] bind off 24 stitches for neck [illegible] very loosely. Knit 24 [illegible] 7 ridges on each shoulder [illegible] stitches [illegible] knit plain for 23 inches. Purl [illegible] 2 for 4 inches.

Sew up sides leaving 9 inches [illegible] for armholes. Make 2 [illegible] crochet around neck [illegible] [illegible] and 1 row of [illegible] crochet around armholes.

In the directions [illegible] hanks are given as the [illegible] amount of wool for [illegible] er but I find that [illegible] necessary amount for [illegible] same weight [illegible] 4 hanks [illegible] only where the wool [illegible] trench wool it is called.

The [illegible] hank left [illegible] will make a pair of wristlets [illegible] although I have not tried it.

Khaki for the soldiers and [illegible] gray for the sailors [illegible] prescribed colors, but the [illegible] is using red wool [illegible] to the shortage.

Whether a soldier would be [illegible] to wear a red sweater [illegible] doubtful or not I [illegible].

Wheat-Eaters Are Slackers

WE ARE doing something [illegible] the people of the [illegible] [illegible] comprehend.

We were feeding before the war 100,000,000 people in the United States.

Today we are feeding [illegible] people in Europe and we are feeding 2,500,000 in the army [illegible] have been taken out of [illegible] pursuits.

One of three [illegible] is [illegible] fat.

We find that one of the [illegible] is the conservation of [illegible] conservation of fats.

The best way to grow fat [illegible] hog.

Before the war Germany [illegible] England and France [illegible] do the same thing.

They found it took [illegible] amount of tonnage to [illegible] over than it did to [illegible] this country or Canada and [illegible] send them over.

One of the first [illegible] did on his return from [illegible] to start a porkless day [illegible] conserve the fats that [illegible] shipped abroad.

I believe there is no [illegible] fact that the people of [illegible] the present time [illegible] as they see it but I [illegible] do more.

We started out to get the [illegible] tion of wheat in the United [illegible] down to 50 per cent of what [illegible] before the war.

Here in California [illegible] we eat only [illegible] the amount of wheat [illegible] use.

If the people of California [illegible] sing saving all [illegible] that wheat [illegible].

Wheat is not [illegible] sity and I say it [illegible] food authority.

Any person who [illegible] wheat [illegible] [illegible] Ralph P. Merritt, food administrator for California.

The farm as well as the front [illegible] [illegible]

Beware of Fake Tree Doctors

By Harold A. Ellis

Horticultural Specialist, Los Angeles, Cal.

THE fakes of tree surgeons, doctors, fake remedy dealers and the methods of the unscrupulous horticulturists" are brought out in this article for the purpose of giving the reader on guard and prepared to detect the villain before it is too late.

One method by which incalculable damage is done annually is by the fellow who, with the pruning shears, presents himself as an expert gardeman in the use of pruning tools. He usually tells you he knows all about "pruning them up," and prune them up he does, usually cutting off all fruit wood to the tip of the last branch.

The writer has observed considerable of this style of pruning in the San Fernando Valley, where several apricot orchards have been stripped of all their fruit wood, thus depriving the owners of crops worth several thousand dollars.

Worse Than Stealing

Another class of so-called experts with the pruning tools who will bear watching is the mechanical fellow, and this constitutes about 75 per cent of the men who do this work. They are not trained horticulturists, but have learned the work mechanically and the result is, if you have, say, ten varieties of trees, this fellow will prune them all in the same manner. With many trees, and especially peaches, certain varieties bear nearly all the crop on the tip of the previous year's growth. Now, if this growth is cut back, the fruit is cut off, and you make a solemn vow you will never let that tree be pruned again.

If a thief steals your fruit, you can punish him by putting him in jail, but you cannot punish the fellow who wastes many times more fruit than is ever carried away by the birds or the boy who climbs over the fence and helps himself.

Good Tree Surgeons Scarce

In most cases the grower is the victim of his own carelessness. He is in too great a hurry to get the work done and does not take time to investigate the skill and ability of the men whom he employs.

Good tree surgeons are very scarce and demand more money for their services than the men who ruined your trees and cut away the crop, but the most skilled man you can get will be the cheaper for the grower to employ.

I would caution anyone to be very careful with whom they contract to have pruning or other surgery work done by the piece. When work is done in this manner, the workmen are inclined to try for speed rather than careful work. The result is your trees suffer and your crop does not come up to your expectations.

Cowboy Horticulturists

I have known men to contract pruning by the tree and then hire cowboys who had never been in an orchard to do the work. The results were deplorable; a fine orchard ruined before the owner knew what was being done.

I would caution you, if you must contract your work done in this manner, to be on the job and watch the workmen carefully.

I have yet to find any malpractice among men who use the knife and saw for the control of bacterial troubles, because this is usually not undertaken except by skilled men, who are thorough in their work.

Thoroughness is the secret of success in this work, and if the surgeon cuts the diseased parts out clean, disinfects well and preserves the tree, you will have no cause to worry.

Sprays and spray materials provide a constant source of revenue for the cure-all fellows, who make it their business to keep the market always supplied with some remedy which will surely destroy every pest your orchard is inflicted with.

Sprays Made to Sell

I have seen much damage done by the use of spray materials of this kind, because the manufacturer did not know what he was making it for, except to sell, and, of course, could not tell the purchaser how it should be used.

A great many of these remedies which are sold as insecticides are made up with kerosene, distillate or other oils, which are very dangerous to use when the foliage is out, while they may be used to advantage while the tree is in the dormant stage.

I cannot understand why anyone should risk damaging valuable trees by trying new and unknown spray materials when the State has entomologists who are trying and proving remedies all the time, and all you have to do is to consult your nearest county horticulturist, or State horticulturist, who will gladly supply the desired information.

Coloring of Best Layers

HEALTH and vigor are fundamental to high egg production. A more efficient culling of the egg-producing hens and the use of the better layers mated to males out of superior layers for breeding will build up the average productiveness of the flock.

The yellowness of vent, beak and shank of yellow-legged breeds is a fairly accurate guide to the laying ability of different fowls in the same flock.

The amount of yellow coloring material deposited in the ration fed may modify the rate of change from yellow to white and vice versa in different birds even in different pens of birds.

Shank Color Observations

	No. of Hens.	Average Eggs per year.
[illegible]	[illegible]	156.1
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Vent Color Observations

	No. of Hens.	Average Eggs per year.
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Beak Color Observations

Shade of Yellow.	No. of Hens.	Average Eggs per year.
Pale	761	160
Medium	200	145.5
Yellow	190	126.3

Yellow-color indications would seem to be of the most value during June, July and August. Such indications should apply to all distinctly yellow-legged breeds.

The data indicate that shank color and beak color are somewhat more reliable to use for summer culling and grading than vent color This is perhaps due to the fact that the yellow pigment leaves and returns to the vent more rapidly than it does to shanks and beak.—J. E. Dougherty, University of California.

Where ground packs after heavy rains it may be a rather difficult matter to get it thoroughly pulverized. In this event, where the garden rows will not permit the use of the harrow, it is a good plan to follow with a garden rake and pulverize the clods and smooth the surface.

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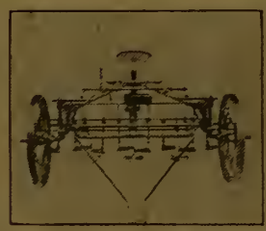

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Address Orchard and Farm,
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The Flower Garden

By Mrs. E. E. Paquette

Mrs. Paquette, who is a well-known floral gardening authority of Ventura, Cal., writes exclusively for Orchard and Farm. She will reply to questions addressed to her at 1118 Polli street, Ventura, Cal., if the inquirer will enclose a stamp.—Editor.

JULY is a month of seedbeds and boxes. The sun is now too hot to plant small seeds in the open ground and there are many kinds of seeds to plant in July, for instance, cypress and eucalyptus for hedges. Plant these in flats about five inches deep. Have soil moist when you plant the seed and protect the boxes with shade of canvas or light muslin. Canterbury bells, foxgloves, larkspur, etc., should be planted now in seed boxes for next season's bloom. Pansies, stocks, primroses, primula and cinerarria should be planted for winter and spring bloom. Also plant a late bed of cosmos and petunias.

The early spring blooming bulbs will be all ripened now and should be lifted carefully. Leave the tops on unless they are entirely dead, and the bulbs thoroughly ripened. Pack bulbs loosely in damp sand and put in a cool, dry place.

Pelargoniums and Geraniums

"My pelargoniums and geraniums are not blooming and I would be glad if you could tell me why. They are growing fine and the foliage of the geraniums is a rich tender green, but there is almost no bloom. The pelargoniums have long, soft stems, but the leaves are shriveled and blighted. The soil is rich and we have plenty ot water and have cultivated them well."

Your pelargoniums should be in full bloom now. They do not want a rich soil—for richness makes only foliage and not bloom on this plant. Give little or no water, and never wet the leaves or blooms. Too much water will cause the leaves to shrivel up. Geraniums should also be kept on the dry side for bloom, and a soil that is too rich will produce nothing but fine foliage in geraniums.

Golden Glow Trouble

"Can you tell me what is eating my golden glow? Last year when it was blooming the bloom would always be notched and spoiled. The leaves were also eaten and we could find a gray bug with a hard shell and a funny long nose on the plants. We cut the plants down before they were through blooming on account of so many of those bugs. And now just as the plants are beginning to grow up nicely they are covered down near the roots with white round grubs. These grubs seem to eat the plants They ate some small plants of peppers that had been planted near the golden glow off under the ground like cut worms would. Can you tell me what they are and what to do for them?"

The hard-shelled gray bug that was eating the golden glow last year was the snout-nosed rose beetle. It has a peculiar fancy for golden glow, but it will eat anything, for it is a regular hog. The white grub is the larva of the rose beetle that has hatched out in the roots and soil near the golden glow. You can kill these by getting "Black Leaf 40" and diluting it to about 1 to 200 parts water. Then pour a small cupful of the solution around the roots of the plants that you plant near the golden glow and around the golden glow. When the larvae hatch and the gray bugs are again on the plants, spray with the "Black Leaf 40" solution, or you can take a pail with a little kerosene in it and knock the bugs off into it. This is easily done, for they will fall if touched with a stick.

Pepper Trees for Hedges

"I have been told that the pepper tree makes a good hedge. Would you advise using it near the house? And could it be kept trimmed into a decent size?

Pepper trees make a pretty hedge for the first year or two, but they soon get too large and are not nice trimmed. I would not plant them.

Plants for Shady Places

"I have a bed about three feet wide all along the north side of our house. What shall I plant in it besides ferns? What ferns are easy to grow?"

You could get some of the tall wild ferns from the hills and wooded places, and you will find the holly fern, sword ferns, pteris, maidenhairs and woodwardias easy to grow after they are once established. To have the best success with the ferns you should see that the bed is well drained and then get the soil in as near the condition as it is where you get the wild ferns as you can. If possible, get a few sacks of the leaf mold the ferns grew in. With the ferns you may have begonias. They are always good and there are so many varieties that you will have no trouble in making a selection. Japanese anemones come in soft pinks and whites. Columbines love shady places, as do also cinerias, primulas and pansies. A big hydrangia would be good in one end of the bed.

Rose Troubles

"We want to make a rose bed, and a nursery man said we should be careful about the location. What did he mean and what is a good location for a rose bed?"

One of the principal things about the location of a rose bed is drafts. If you will stand between two houses you will feel a suction or air or draft. This is very bad for roses. It is also bad for them to be planted where there is not good ventilation. I know you will think there is always ventilation in the garden, but it is not so.

Select a good sunny, well drained place Don't be particular about the soil, for if that is not right you can make it right. Roses should have full sun most of the day, but if there are strong winds it is well to have them protected by some kind of a hedge or wind break. But do not plant too close to the wind break, for roses must not be in the shade, and they must not be in a low, flat, damp place, for nothing is as sure death to roses as damp feet.

Pink-White Druschki

"I got several plants of the white(?) Druschki last year, and the bloom last season was pure white, but this year they all have some roses that are tinged with pink and some of them are real pink. It is a dainty light pink but a pink nevertheless. Are they the real Druschki, or did the nursery man give me something else? Or, are they going back on me?"

I do not know why the Druschki insists on blushing so violently when she is kissed by the sun, but she does. Even the oldest and best of them do. It is some peculiar climatic conditon, or something about the sunshine. What I do know is that Druschki, our snow queen, will blush at times. I think it is just to show us that while she is in every sense of the word a snow queen, her heart is warm and loving.

W K Taylor's garden at Corvallis, Ore., consists of one acre this year, which is larger than last year. He raises all kinds of vegetables and has them during the entire season. Twenty-five per cent of their living comes from the garden and Mrs. Taylor is the gardener.

Pretty Costumes

Selected by Ruth Roberts.

These costumes are all carefully chosen with a view to their adaptability to the needs of the home dressmaker. None is elaborate or complex and all can easily be made from the patterns provided by this department. To get any of the patterns send ten cents in silver or stamps to Pattern Department, Orchard and Farm, Examiner Building, Los Angeles.

2512—Lady's Dress

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6 yards of 40-inch material. The skirt measures about 2 yards at the foot. Price, 10 cents.

2501—Junior's Dress

Cut in 3 sizes: 12, 14 and 16 years. Size 14 requires 4¼ yards of 44-inch material. Price, 10 cents.

2508—Girl's Dress

Cut in 4 sizes: 4, 6, 8 and 10 years. Size 8 requires 2½ yards of 36-inch material for the dress and 1¾ yards for the guimpe. Price, 10 cents.

2502—Dress for Misses and Small Women

Cut in 3 sizes: 16, 18 and 20 years. Size 18 will require 6¼ yards of 40-inch material. The skirt measures about 1⅞ yards at the foot. Price, 10 cents.

2505—Lady's Apron

Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium requires 5¾ yards of 36-inch material. Price, 10 cents.

2506—Lady's Sports Blouse

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 4 yards of 36-inch material Price, 10 cents.

2513—Child's Short Clothes Set

Cut in 5 sizes: 1, 2, 3, 4 and 5 years. Size 4 requires for the dress, 2¾ yards. For the petticoat, 1⅝ yards. For the combination 1½ yards of 36-inch material Price, 10 cents.

2486—Boy's Suit

Cut in 4 sizes 3, 4, 5 and 6 years. Size 4 requires 2¼ yards of 40-inch material Price, 10 cents.

2144—Lady's House Dress

Cut in 7 sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 36 requires 6¼ yards of 36-inch material. The skirt measures about 2½ yards at the foot Price, 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date spring and summer 1917 1918 catalogue, containing 550 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking, also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker

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Be sure to give number and size. Send [illegible] for patterns to ORCHARD AND FARM [illegible] Examiner Building [illegible] and Broadway, Los Angeles. Be sure to sign your [illegible] name and address below

Here, There and Elsewhere

GRANGE extension work is being prosecuted quite vigorously in Siskiyou County at the present time. Three new granges have lately been started there, which makes five in the county; and State Deputy Granville Libby, who is now working in that county, expects to report the organization of others soon. As soon as Siskiyou County is organized it is the intention to start work in adjoining counties.

Bennett Valley Grange in Sonoma County has a record to its credit which is probably not enjoyed by any other grange in the State. Recently this grange celebrated its forty-fifth anniversary with a picnic. In all of its forty-five years of service, Bennett Valley Grange has never failed to hold its anniversary picnic.

The May number of the National Grange Monthly, the official grange paper of the United States, published at Springfield, Mass., had for a title page an outline map of the State of New York, divided into its fifty-six counties. The number of granges in each county were indicated by printed dots. Every county in the State outside of Greater New York, except one in the Adirondack Mountains, has subordinate granges—914 in all.

Last year Massachusetts State Grange assisted ninety worthy young men and women to complete their agricultural education with what it terms its revolving educational fund.

Vermont, a small State, with 246 towns, has 240 granges.

The teaching of agriculture in the grammar grades as well as in the high school is being advocated by the members of Bellevue Grange. This grange is doing a fine work in that community in agricultural and patriotic lines.

A Fine Patriotic Record

IT IS a custom with the granges of this State, the same as it is in all other grange States, to carry their members who have entered the service of the War Department of the Government on their books without the payment of any fees or dues.

There are very few granges in the State that have not given up some of their members to the service of Uncle Sam. Rutherford Grange, in Napa County, recently dedicated its service flag, which at that time contained 23 stars. One of those stars had already been turned into a star of gold. If any other grange in the State has a better war record than this, we would be pleased to know of it.

Smile, Brothers, Smile

SMILE awhile, and while you smile, another smiles,
And soon there's miles of smiles, and life's worth while, because you smile.

Give a grin when you come in,
Make it wide, not tight and thin.
"Hello, Joe!" and "Howdy, Jack!"
Slap the other fellow's back;
Pull out your mitt, and crack a joke,
Laughs no bones are broke;
Smile and by you'll make the grange
Every sunshine range,
Overflowing good cheer and vim,
Smile when you come in.

Stockmen and Public Lands

By C. E. Wantland

I TOLD you so! To some it is a great satisfaction to be able to prove up as a successful prophet. To others, it matters not, but if a past prophecy has proved to be correct possibly a forecast for the future upon the same general subject from the same prophet is entitled to a hearing.

Many years ago a tew of us who thought we understood conditions and knew what we were talking about, urged, in conventions and otherwise, livestock owners of the great public land States to get together and agree upon plans for leasing the public lands and appeal to Congress for action.

Fair plans in detail were proposed and it was urged that unless new measures were adopted and the destruction of the ranges through overgrazing stopped, greater losses would follow and the price of meat to consumers would soar heavenward.

Nobody Home

But there was nobody home to the warning. Sheepmen and cattlemen could not agree. Winter losses and over-grazing continued. Uncertainty and a bad condition of affairs has been the result. If abnormally high prices had not come as a result of war conditions, certainly many livestock men would have closed up shop before this.

The 320-acre dry farming homestead did its work in some districts. The 640 grazing homestead will put on the finishing touches in some other districts. The potash and general leasing bills, with prospectors' permits for oil, coal, gas, phosphates, potash, etc., will make it harder to get favorable grazing regulations.

Now, in convention and otherwise, cattlemen and sheepmen are at last advocating range control, grazing leases, etc.

Pull Together

It's too late! Forget it! Get together in each state and pull together for a fair plan to suit the conditions for each State regardless of other States. Pull for a classification of lands; irrigation surveys to determine reservoir sites, areas susceptible to irrigation and underground water basins; geological surveys to determine mineral land areas. Ask for the sale at fair prices and on long time of land good for grazing only, subject to future discovery of mineral within, say, ten years. This plan may get you somewhere.

It is in the cards that when the war closes the burden of taxation will be so great that new sources of revenue will be looked for and the public lands will not be overlooked in the shuffle.

It is entirely reasonable to suppose that some fair plan can be put through Congress, if cattlemen and sheepmen will get together in a united effort to secure what is right and necessary to protect for the future the great livestock industry. It is now recognized fully at Washington, as the great arm of agriculture upon which Uncle Sam is leaning in order to speed up production and win the war.

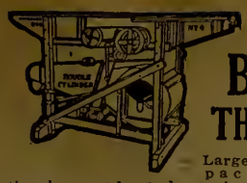
Cattlemen's Meeting

THE meeting of range cattlemen to be held at the University Farm on June 27th and 28th is a meeting to which the country organizations throughout the State are sending three or more delegates for the purpose of discussing a State-wide organization for the beef cattle men of California.

With the beef cattle industry of the State in a more or less critical condition on account of the inevitable feed shortage and the unusual range of prices due to war conditions, this is counted to be a most important meeting,

---

The best cow, irrespective of breed type or conformation, is the one that produces the most butter fat from a given amount of feed without injuring her vital forces.



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Largest cleaning capacity of any thresher made and requires less help to operate. Pays for itself in one season. Hardwood construction throughout. Won't split the seed. Double cylinder. Made in six sizes—largest to smallest. WRITE FOR CATALOG.

California Implement Co.

122-124 North Los Angeles St., Los Angeles.

Advertise on the Farmers' Market Space. Big results. Only 3 cents per word

A Match-Lighting Gasoline Lantern!

No torch needed. Lights with a match like the old-time oil lantern, but makes and burns its own gas from common gasoline, giving a brilliant, steady, white light of 300 candle power. Most Brilliant Light Made. Brighter than the brightest electric bulb. More light than 20 oil lanterns. Cheapest and best light made. Costs less than one-third of a cent per hour. Safer than the safest oil lantern. The

Coleman Quick-Lite

No wicks to trim—No globes to wash. No dirt or grease, no glare or flicker. Absolutely safe. Fuel can't spill—no danger if tipped over in straw. Will last a lifetime. Address our office for catalogue No. 10.

COLE LIGHT & SALES CO., 1216-18-20 E. 41st St., Los Angeles, Cal.

Demonstration Room, 246 S. Spring St.

WAR SAVINGS STAMPS DELIVERED TO YOUR HOME

Tear Out—Fill In—Hand Letter-Carrier—or Mail to Post Office

TO THE LOCAL POSTMASTER:—Kindly have letter-carrier deliver to me on _____ (Date) for which I will pay on delivery:

_____ (State number wanted) $5. U. S. WAR-SAVINGS STAMPS at $_____ (See prices below) each

_____ (State number wanted) 25c. U. S. THRIFT STAMPS at 25c. each.

Name _____

Address _____

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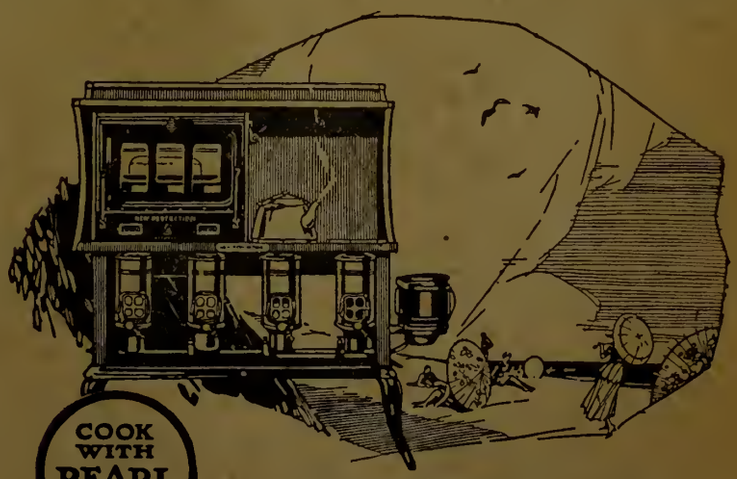
W. S. S. COST DURING 1918

April	$4.15	July	$4.18	Oct.	$4.21
May	4.16	Aug.	4.19	Nov.	4.22
June	4.17	Sept.	4.20	Dec.	4.23

W. S. S. WORTH $5.00 JANUARY 1, 1923



COOK WITH PEARL OIL

A New Perfection Oil Cook Stove means kitchen comfort and convenience. Ask your friend who has one. Used in 3,000,000 homes. Inexpensive, easy to operate. See them at your dealer's today.

Your kitchen cool as the seashore

Even on the hot summer days you can keep your kitchen comfortably cool by using a New Perfection Oil Cook Stove. No dirt or dust; no smoke or odor. Economical.

Lights at the touch of a match and heats in a jiffy. Easy to operate and more convenient than coal or wood. Bakes, broils, roasts, toasts,—all the year round.

In 1, 2, 3 and 4 burner sizes, with or without ovens or cabinets. Ask your dealer.

STANDARD OIL COMPANY (California)

NEW PERFECTION OIL COOK STOVE

What to Feed Chicks

AFTER chicks are ten days old, a good growing mash, composed of two parts by weight of bran, two parts middlings, one part cornmeal, one part low-grade wheat flour or red-dog middlings, and 10 per cent sifted beef scrap, may be placed in a hopper and left before them all the time. The mash may be fed either wet or dry; if wet, only enough moisture (either milk or water) should be added to make the feed crumbly, but in no sense sloppy. When this growing mash or mixture is not used, a hopper containing bran should be accessible to the chickens at all times.

After the chickens are two months old they may be fed four times daily, with good results. After they are three months old, three feedings a day are enough.

When one has only a few chickens, it is less trouble to purchase the prepared chick feeds, but where a considerable number are reared it is sometimes cheaper to buy the finely cracked grains and mix them together.

Some chick feeds contain a large quantity of grit and may contain grains of poor quality, so that they should be carefully examined and guaranty as to quality secured before purchase.

As soon as the chickens will eat the whole wheat (usually in about eight weeks), cracked corn, and other grains, the small-sized chick feed can be eliminated. In addition to the above feeds, the chickens' growth can be hastened if they are given sour milk, skim milk, or buttermilk to drink. Growing chickens kept on a good range may be given all their feed in a hopper, mixing two parts by weight of cracked corn with one part of wheat, or equal parts of cracked corn, wheat, and oats in one hopper and the dry mash for chickens in another. The beef scrap may be fed separately. It is advisable to wait until the chicks are ten days old, although some poultrymen put the beef scrap before the young chickens at the start without bad results.

Turkeys the Best Mothers

I HAVE learned one thing about raising this year, and that is, that turkey hens make so much better mothers than chicken hens, that the chickens ought to be ruled out of it. The theory of the thing is that if the eggs will be taken from the turkey, and set under a hen, the turkey will lay a second clutch, and so twice as many turkeys can be raised. There is another side of it. First, the early turkeys do so much better than late turkeys, that it frequently is better not to bother about a second lot, but to let the turkey raise her young ones as soon as she wants to.

With two turkey hens this spring the writer let one turkey hen set, but "broke up" the second turkey and gave her eggs to two hens and the young turkeys to the best mother of those two hens. Both lots hatched within two days of one another. The hen has hung around the barn a good part of the time and through dust and confusion the little turks have not proved very thrifty. The turkey hen on the other hand has avoided the barn absolutely so has gotten all of the feed for herself and chicks from the field, and her babies are half again as large as those brought up by the chicken hen.

Next time the turkey hens can do the bringing up, and if a second litter is wanted, a hen can hatch part of the eggs, but the poults will be given to a turkey to bring up.

Turn under the straw, leaves and litter; don't burn them. Humus is not made of smoke.

FARMERS CLASSIFIED MARKET PLACE

Our rate for classified advertisements on the Market Place Pages is 3 cents per word for each insertion. Advertisements must reach us before the 21st of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

REAL ESTATE

WHEAT, CORN, BEANS—Demand exceeds production. Astonishing high prices. Farmers on our lands now arranging planting 2000 acres in beans. Two big tractor outfits; wells being sunk, lands fenced, etc. Will replant same acreage to wheat this fall. No irrigation required. We own several thousand acres choice lands highly adapted to production of these staples. Deep, rich soil, no alkali, nearly level; excellent climate and water. Elevation, 2300 feet. Price, $12 per acre, cash or terms. Call at office and see this season's wheat produced this section—unexcelled. Call or write Department H, 707 I. N. Van Nuys Building, Los Angeles, Cal.

FOR SALE—320 acres in Lake County, California. 175 acres are under cultivation; balance is in wood pasture; land is well watered by two springs, fine young orchard of Bartlett pears and assorted fruit, there are about four hundred trees in full bearing, fine corn, potato and melon ground; ordinary farm house and outhouses; two good wells and windmill. For particulars and further information, inquire of Mrs. A. E. Noel, Lower Lake Bulletin, Lower Lake, Lake Co., Cal. Terms cash or part mortgage.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc? If you have something to sell in any State, write, inclosing 10 cents, for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Texas.

TEN BEAUTIFUL ACRES at La Mesa, eleven miles back from San Diego, assessed at $2250, for sale at much less, cash. Superb for home site, vegetables, citrus, chickens. Pipe line across, underflow of water, road in. Adjacent to El Cajon paved boulevard. Somebody with a long head will be glad to pick this up, cheap, for I cannot use it. E. L. Sabio, La Jolla, Calif.

FOR SALE—10 acres good land fenced. Free soil, 2 miles from Galt, Sacramento County, Cal. Price $125 an acre. $800 loan. Would exchange for 2 acres good land clear, or with small loan. Also have lot 25x101 ft. on high street, Melrose, Oakland, Cal. Price $350. Address R. No. A, Box 82, Acampo, Cal.

WHY PAY $150 for land that only produces crop biennially? I offer for sale 160 acres, or more, producing good crops annually at $35 per acre. Exceptional opportunity to engage in stock raising. Thousands of acres outside range. Andrew Johnson, Sunnyside Farm, Malin, Ore.

RELINQUISHMENT FOR SALE—160 acres choice spot in Victor Valley, 18 miles east of Victorville, San Bernardino County; all level, elevation 2800 ft. 65 acres cleared of brush; well; good water. $1000. Owner, 1548 45th Ave., San Francisco.

FOR SALE—1000 acres, mountain ranch, suitable for cattle, goats and hogs, well improved; 20 acres alfalfa, 60 acres farming land. For particulars, write R. F. D., Route 1, Box 7, Mokelumne Hill, Calaveras County, Cal.

WOULD LIKE TO HEAR from parties having from five to fifteen acres for sale, reasonable, and on very easy terms. Land must be good for raising fruit, berries and nuts, near good town, preferring musical community. Box 783, Oakland, Cal.

FOR SALE—A bargain, ¾ acre, lot 10, N. B., in Civic Center, Atascadero Colony, California. Paid $1060. To get money quickly, shall sell for $400. Carl Storla, Paso Robles, Cal.

EXCHANGE—CLEAR SUBURBAN ACREAGE NEAR TWIN FALLS, for small partly improved California acreage; assume small mortgage. VARNUM, 1528 Broadway, Oakland.

FIRST $500 cash or Liberty Bonds takes my 19-acre tract of Happy Valley, Shasta County, Cal., fruit land; assessed value, Happy Valley Irrigation District, $665. H. H. Shuffleton, Jr., Redding, Cal.

315-ACRE FOOTHILL RANCH FOR SALE for the mortgage, $5750; terms if desired; 2½ miles out from Murrieta, Riverside County, Cal. Write O. K. Department Store, McKittrick, Cal.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

FREE list fruits, farm and stock ranches, Sonoma and Mendocino counties; Russian River section. Miller & Cobbl, Inc., Healdsburg, Cal.

GOOD HOG OR DAIRY RANCH—200 acres; 70 acres alfalfa land; good buildings, running water, near town. M. Funk, Etna Mills, Cal.

FOR SALE OR TRADE—Five acres, unimproved, on electric line, Sacramento. F. D. Butcher, Hayward, Cal.

REAL ESTATE

NO PAYMENTS DOWN.
FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS," AT ORLAND, CAL.; WATER FURNISHED BY UNCLE SAM; WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS; NO BETTER SOIL FOR ALFALFA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET, "ORLAND FARMS."
F. D. BURR CO.,
219 MONTGOMERY ST.,
SAN FRANCISCO, CAL.

FOR SALE—320 acres highly improved property, 70 acres peach trees; 60 acres Muscat and Thompson Vines, 90 acres alfalfa, 90 acres in townsite, on S. P. R. R. High school; grammar school, club house, two churches, and large modern cheese factory, and Standard Oil station, all on this property. Two dairies of 60 cows, four sets buildings for tenants, also hotel, personal property and buildings worth over $30,000. This is good income property. Price $150,000. One-third cash. Terms on balance. Address H. R. Kamm, 1025 Divisadero St., Fresno, Cal.

IDEAL home cottage in the foothills for sale at once; 9 rooms, partially furnished, complete plumbing, bath, toilet, washstands, laundry tubs, big French range built-in, mountain spring piped down to house; 175 acres of land, part heavy timber, pastures, vineyard, home orchard, vegetable garden, outhouses; 2½ miles to S. P. R. R.; will meet train. Address box 67, Kenwood, Cal.

NO. 1004—75 ACRES ON RIVER, near steamboat wharf; 1500 fruit trees, mostly young peach and apple; 8-room dwelling, front porch, 2 halls, attic, shade, well fenced, 15 acres of woodland, chestnut and oak, 7 acres meadow; 6½ miles from county seat, barn and stable, new pig pens 11x60; buildings worth $3500. Price $3250. Russell Realty Co., Baltimore, Md. Catalogue.

GOOD PUYALLUP HOME—Trade for small acreage in California. 2½ acres, 1¾ acres in evergreen blackberries, 1-3 acre in currants; 30 fruit trees; 5-room house garage; large chicken house and barn; 20 minutes walk to center of Puyallup; 1 block to street car to Tacoma 9 miles distance; 15 miles to Camp Lewis; leased for $225; income $800; price $3500. L. Clement, 9th St. and 7th Ave., S. W., Puyallup, Wash.

RELINQUISHMENT, 320 ACRES, Madeline Plains, Lassen County; all level, sandy loam, 2½ miles fence; 4 miles to station, on county road. Sale or trade. H. A. Peckman, 1730 Jackson street, San Francisco.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information, address A. J. Smith, Groveland, Tuolumne County, California.

BUY, SELL OR TRADE farms, city property and merchandise stocks. Give full particulars and tell me what you have and what you want. D. J. Forbes, 153½ Grand Ave., Portland, Ore.

IN THE GREAT SAN JOAQUIN VALLEY—Large tracts of unimproved land. Can sell 20 acres or 10,000. Improved vineyards, orchards, alfalfa, stock and dairy ranches. If you mean business write your wants. E. B. Wilson, Box 526, Fresno, Cal.

FOR SALE—10 Acres Washington Navel Oranges, in bearing (from 1911 buds); third year; cement pipe line; level; price $5,000; payments. Reference, R. W. Core, nurseryman, Klink, Cal. A. W. Vale, owner, Des Moines, Iowa. 3124 Kingman Blvd.

120 ACRES HEAVILY TIMBERED, unimproved hill land; oak, fir, madrona, some redwood; good soil, pasture, springs; forced sale; $950 cash. F. Bond, Cloverdale, Cal.

BARGAIN—240 ACRES in "Thompson Seedless Belt," Fresno County, near Selma, Cal. Step lively. R. R. "A" Box 221, K. Townsend, Selma, Cal.

GOVERNMENT LANDS

RELINQUISHMENT FOR SALE—160 acres choice spot in Victor Valley, 18 miles east of Victorville, San Bernardino County, all level; elevation, 2800 feet; 65 acres cleared of brush; well, good water; good loose soil. $1000 cash desired. Will not consider trade. Owner, 1548 45th Avenue, San Francisco.

BE PATRIOTIC—RAISE STOCK on productive Government land, plainly marked on county sectional maps, $2.50 ANY county. Booklet, particulars for stamps. Write Joseph Clark, Sacramento.

RABBITS, PIGEONS, DEER

NEW ZEALAND RED RABBITS—Pedigreed stock; none finer; teeming with rich color; four red feet, creamy bellies; young stock, July, August and September delivery. Address E. Kelly, 834 Main St., Petaluma, Cal.

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ALL KINDS RAW FURS—Moleskins, rabbit skins, goat skins; hides and skins bought. T. Lipshitz, 774 Grove st., San Francisco, Cal.

GUARANTEED SEEDS

PLANT GIANT MARROW CABBA[illegible] year round for California's succ[illegible]n land customer, reordering, reports [illegible] inch trunks, solid 'marrow,' richer, h[illegible] and vastly outyielding kales, [illegible] waste." GUARANTEED, PED[illegible] SEEDS from plants ten feet high, [illegible] yard-long leaves, half as wide [illegible] acre supply, $2. Photos, sugg[illegible] f[illegible]

PLANT PEAS—"GOLDEN PO[illegible] BUSH PEAS—Phenomenal variet[illegible] green and tender that "cann[illegible] NECESSARY. Thoroughly [illegible] seeds cooking equally palata[illegible] "canned" product. No sticking, or tr[illegible] packets, 10c.

BEANS BETTER THAN BULL[illegible] win war. "Kentucky Wonder," d[illegible] best adapted varieties for Coast fro[illegible] years' testings—some frost-resist[illegible]s. [illegible]ets, 10c.

PLANT "PURPLE PERFECTIO[illegible] TATO—Frost-proof novelty, salad [illegible] CONTINUOUS GROWER, s[illegible] CROPS YEARLY for mild cl[illegible] prising yields. Sampl[illegible], 1[illegible] $2.50, prepaid. E. E. Martin, [illegible] ing Seedsman, B-4, Ban[illegible]r, W[illegible] "STINGS" LURK IN UNGUARAN[illegible] SEEDS, FELLOW FARMERS.

REAL ESTATE—Sale or Exchang[illegible]

A GOOD IMPROVED 3-ACRE C[illegible] RANCH. For sale, rent or ex[illegible] San Francisco property, about 1[illegible] cow and all new buildings, in to[illegible] tati, near schools and church[illegible]. [illegible] aged, cannot handle same al[illegible] Mrs. Emilie Henning, Cotati, Cal.

FOR SALE OR EXCHAN[illegible] STOCK and grain ranch[illegible]. $7000 Want Southern Cal i[illegible] land, same value. ROBERT BOL[illegible] ch[illegible]se, Ariz.

FOR SALE AND EXCHANGE R[illegible] and farms, everywhere. CO[illegible] COAST REALTY COMPANY [illegible] OIL BUILDING, Los Angeles, Cal

REAL ESTATE FOR EXCHANG[illegible]

WE EXCHANGE Real Estate—John[illegible] Temple, San Jose, Cal.

FARMS WANTED

WANTED—To hear from owner of [illegible] ranch for sale. State cash price f[illegible] description. D. F. Bush, Minneapolis, M[illegible]

WANTED—To hear from owner of fa[illegible] unimproved land for sale. O. K. Ha[illegible] Baldwin, Wisconsin.

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BE PATRIOTIC — Raise stock. Ore[illegible] California openings. Valuable l[illegible] marked plainly on county sectional m[illegible] $2.50 any county. Booklet free. J[illegible] Clark, Sacramento.

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ANY AMOUNT ON COUNTRY PROPE[illegible] Bank rates. Write for particulars. [illegible] specialize on large country loans.
REALTY MORTGAGE CO.,
W. E. Palmer, Pres.,
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LIBERAL LOANS and fair rates on g[illegible] country property, any amount, [illegible] medium or large (none is too large) Wr[illegible] exact location, amount and full part[illegible] to Geo. W. Austin, 1538 Broadway, Oak[illegible] Cal.

PAINTS AND VARNISHES

Buy at Fact[illegible]

Best Red Shingle [illegible] 50c gallon in 5-[illegible] cans; price for J[illegible] only. Write for fa[illegible] prices on paints [illegible] nishes and e[illegible] Oakley Paint M[illegible] 1517 Naud [illegible] Los Angeles.

MISCELLANEOUS—For Sale

WHY ALLOW NOXIOUS WEED[illegible] AND GRASS TO GROW?

KIL-WEED

Will Eradicate Them

Conserve the Plant Food Th[illegible]

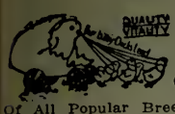
One Gallon Trial Order $2.[illegible]

KIL-WEED COMPANY

Sacramento, Calif.

FARMERS' CLASSIFIED MARKET PLACE—Continued

POULTRY



Of All Popular Breeds at Popular Prices. Special Sale—Carneaux Pigeons, 75c and $1.00 per pair. We specialize in high-class Poultry, Pigeons, Turkeys, Geese, Guineas, Pheasants, Peafowl, Doves, Canaries, Parrots, Dogs, Cats, Rabbits, Guinea Pigs and pets of all kinds. What we do not have on hand, we can secure for you. We ship everywhere. Correspondence solicited.
EVERYTHING IN HAIR, FUR AND FEATHERS.
FANCIERS' EXCHANGE,
640 South Main Street, Los Angeles, Cal.

OUR ANNUAL SALE—
Breeders, Eggs, Chicks

Make room for youngsters. We offer our surplus breeders at HALF what they cleared 1918! Pens, trios, pairs, hens, eggs. Males below half. CHICKS REDUCED. Leghorns, Wyandottes, Rocks, Reds, Anconas, Minorcas, Orpingtons, Brahmas, ducks, turkeys, 12-week pullets. Some greatest hens in California, Government trapnested; 200-283 eggs yearly!! Investigate quick. W. Beeson, Pasadena, Cal.

FOR SALE—300,000 S. C. White Leghorn chicks during April, May and June; heaviest laying Hoganized stock only. Broilers in ten weeks; pullets lay at five months. We guarantee safe arrival of all chicks to destination; you pay only for chicks received in good condition. Shipped safely anywhere west of Rockies. Price, $10 per 100; $95 per 1000. No money in advance; pay on delivery. Finest hatchery in the world. Established over twenty years. Must Hatch Incubator Co., 405 Seventh st., Petaluma, Cal.

WE are specialists in the production of high-grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strains of America's choicest Leghorns fill our breeding pens and my personal attention is given to all details, assuring each customer of highest quality stock. Our catalog is free. It fully describes the stock, eggs and chicks, containing photos showing the ideal conditions and methods used to make our Baby Chicks worth having. A postal mailed today will bring it to you. The Vineburg Hatchery, F. C. Rhode, Prop., Vineburg, Cal.

WE ARE OFFERING SEVERAL BARGAINS IN POULTRY PUBLICATIONS WITH RENEWAL SUBSCRIPTIONS TO ORCHARD AND FARM. AS AN EXAMPLE—ONE YEAR'S SUBSCRIPTION TO THE CALIFORNIA POULTRY JOURNAL, INCLUDING YOUR RENEWAL TO ORCHARD AND FARM, FOR ONLY 75c. NOTE THE LARGE AD ON ANOTHER PAGE. ORCHARD AND FARM, EXAMINER BUILDING, LOS ANGELES, CAL.

FINEST HATCHERY IN THE WORLD—Baby chicks, Rhode Island Reds and White Leghorns, settings, 100, 1000 hatched right in our $60,000 brick and concrete hatchery from our quality heavy layers; reasonable prices; stock hatching eggs. Pebbleside Poultry Farm, Sunnyvale, Cal.

MODEL POULTRY FARM—White Leghorn Specialists. Established 1903. We are now booking orders for May and June delivery of baby chicks and hatching eggs from our hred-to-lay stock. We still have a few 10-weeks-old pullets to sell. Our prices are right. W. C. Smith, Prop., Corning, Cal.

BARRED PLYMOUTH ROCKS—Champion prize winners and wonderful layers. Stock for sale—nothing better in poultry than Vodden's Rocks. Catalog free. Vodden's Rockery, Los Gatos, Cal.

FOR SALE—Mann Green bone-cutter. No. 7, iron base, good as new, $8. Would exchange for small clover cutter. A. S. Dunn, R. D. 1, Ontario, Cal.

CAPONS ARE PROFITABLE when you know how to make them and feed them. I will teach you. Mrs. H. Ament, 1923 18th St., Santa Monica, Cal.

"EASTMAN'S Bred-to-Lay" Barred Plymouth Rocks. Hatching Eggs. Fairmead Poultry Farm, Fairmead, Cal.

S. C. R. I. EGGS, $1.50 setting. Hewitt & Hewitt, Dixon, Cal.

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HAZARD & MILLER, ATTORNEYS AT LAW—Patents and Patent Causes. Henry A. Hazard established the agency in 1878, which has been uninterruptedly in business since that time. Herman Miller, eight years examiner in U. S. patent office. Our library contains the record of every U. S. patent. Examination without charge. HAZARD'S 1918 BOOK ON PATENTS FREE. 504-505-506 Central Building, Sixth and Main streets, Los Angeles.

PATENTS that protect are secured through us; established fifty years. Send for free booklet on "Patents." Pacific Coast Patent Agency, Inc., Stockton, Cal.

RABBITS AND PIGEONS

"SCIENTIFIC FUR FARMING." A profitable, spare-time business, good for $1500 per year and more. RAISE STOCK FOR US—We buy all you raise. We pay you the highest market prices and furnish perfect breeding stock. GO INTO BUSINESS FOR YOURSELF. Our booklet and details mailed for 10 cents.
DEPT. X,
LOS ANGELES FUR FARM,
C. E. Sherman J. M. Sherman
2669 N. Griffin Ave.,
Los Angeles, California.

SELL US YOUR NEW ZEALAND RABBITS—We are in the market at all times for healthy, utility New Zealand Rabbits, weighing 5 pounds or more, and pay as high as $5 each for them. Send for buying price list. Gilmore Rabbit Farm, Santa Barbara, Cal.

PIGEONS—BUY BIG BIRDS. Homers, Carneaux, White Kings; 15 to 20 lbs. squab a year per pair. E. B. Julian, 1506 O st., Sacramento, Cal.

RABBITS—Choice young New Zealand red does for sale. R. C. Specht, R. R. A., Sonoma, Cal.

MONEY IN RABBITS—Raise rabbits for us. Will pay $6 per pair. Send stamp for reply. H. E. Gibson Co., Arcadia, Cal.

FOR SALE—RABBITS. New Zealand and Flemish Giant. Paul Kruger, Watsonville, Cal

FOR SALE—15 PAIRS MATED PIGEONS. A. S. Dunn, R. F. D. 1, Ontario, Cal.

AUTO TRAILERS

AUTO ACCESSORIES, SUPPLIES

FORDS CAN BURN HALF COAL OIL, ALL DISTILLATE, or Cheapest Gasoline, using our 1918 Carburetor; 34 miles per gallon guaranteed. Easy starting. Great power increase. Attach it yourself. Big profit selling for us. 30 days' trial. Money back guarantee. Styles to fit any automobile. Air-Friction Carburetor Company, 325 Madison st., Dayton, Ohio.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES, SAMPLES and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.,
The Yellow Front. Established 1892.
112-118 South Los Angeles St.,
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THE NORTHWEST POULTRY JOURNAL AND ORCHARD AND FARM, BOTH FOR ONE YEAR, ONLY $1.00. YOU SAVE 25c. ORCHARD AND FARM, EXAMINER BUILDING, LOS ANGELES, CAL.

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MERCER AND JORDAN MOTOR CARS—New and used, all models. C. D. Rand & Co., distributors, 1519 Van Ness Ave., San Francisco, Cal.

FARM TRACTORS, MACHINERY

IDEAL HOIST FOR UNLOADING HAY, driving fence posts, stretching fences, erecting buildings, and numerous other purposes around the farm. Inexpensive, great labor saver. Send for pamphlet. U. S. Iron Works, Seattle, Wash.

AVERY 8-16 TRACTOR—Brand new—1918 model. Never been used. For sale at substantial discount. If interested, write for price and where this tractor may be seen. Address Box 750, Orchard and Farm, Hearst Building, San Francisco, Cal.

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SEVERAL NEW AND SLIGHTLY USED ENGINES. ARNOTT & CO., Implements, 112 South Los Angeles st., Los Angeles.

LIVESTOCK—Chester Whites

BILLIKEN CHESTER WHITES; size, quality, easy feeders, mellowness and money-makers. All of these are what "BILLIKEN" stands for. Do you want to get started in the HOG BUSINESS AND GET STARTED RIGHT? If you do, get in on some of the few BILLIKEN kind that are still for sale. Two boars of 1917 spring farrow. Eight boar pigs and 15 sow pigs of 1917 fall farrow. Fifteen 1917 spring gilts that are now bred for an early September farrow. These gilts are all sired by Billiken and are extra fine prospects for brood sows. Immediate delivery on all stock. Prices on good brood stock are getting higher and it is also hard to secure good animals at any price. All stock is cholera immune and will be crated and registered free. C. B. Cunningham, Mills, Sacramento County, Cal.

LIVESTOCK—Poland Chinas

HEWITT'S BIG TYPE POLAND CHINAS—Bred sows and gilts. Hewitt & Hewitt, Dixon, Cal.

LIVESTOCK—Duroc Jerseys

DUROC-JERSEY BOARS, both weanlings and old enough for service. Prices right. Breeding and satisfaction guaranteed. H. E. Boudier, Napa, Cal.

LOS HERMANOS DUROCS—Boars, gilts and weanlings. Hans Duveneck, Ukiah, Cal.

LIVESTOCK—Sheep, Milch Goats

TOGGENBURG MILCH GOATS—Rae P. Williams, Federal Realty Building, Oakland, Cal.

TOGGENBURG GOATS—Edwin Pritchett, Mojave, Cal. Enclose stamp.

LIVESTOCK

I NOW OFFER MY SPRING PIGS, sired by Cook's Hancherdale Jones, a grandson of the famous Gertsdale Jones, and out of big prolific sows, the best of the "Big Types." Write for prices and further information. J. H. Cook, Paradise, Cal.

NURSERY TREES AND PLANTS

PLANT RHUBARB NOW—12 plants furnish all sauce and pies for big family free; 8 plants, $1; one acre has produced $1100 first year. A. M. Jones, 1258 Cahuenga street, Hollywood, Cal.

RHUBARB—$1127 from one acre. A crop every month of the year. Write to me and I will tell you how you can do as well. J. M. Stone, Lodi, Cal. Route 4.

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SEED, GRAIN, THRESHING Machine and Harvester Screenings Wanted—Cash paid for large or small quantities. Mail samples on which we will quote. Mercantile & Warehouse Co., Fifth and Poplar Sts., Oakland, Cal.

TO MAKE YOUR GARDEN GROW apply Morse's Pulverized Fertilizer and Mulcher. $1.50 per barley sack. Write C. C. Morse & Co., Seedsmen, San Francisco.

CORN, SORGHUM, SUDAN GRASS, Mangel Beets and all other kinds of seeds. Immediate delivery. C. C. Morse & Co., 727 Front St., San Francisco.

AGENTS, SALESMEN—Wanted

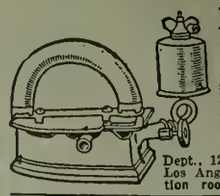
WANTED—SOLICITOR FOR COUNTRY WORK. NEEDS MOTORCYCLE OR SMALL AUTO. GOOD SALARY AND COMMISSION TO THE RIGHT PARTY. A CARD WILL BRING FULL DETAILS. ADDRESS ORCHARD AND FARM, EXAMINER BUILDING, LOS ANGELES, CAL.

BE YOUR OWN BOSS. Work out in the fresh air and sunshine and make good wages. An opening for the right party with small auto or motorcycle. Address Orchard and Farm, Examiner Building, Los Angeles, Cal.

SITUATIONS WANTED

EXPERIENCED RANCH MANAGER and superintendent, open for engagement. Expert rancher and orchardist; every branch of the work thoroughly understood. Life experience; raised and educated to it; 24 years handling farm labor; 31 years pruning and grafting instructor. Experienced in evaporators, spraying, hay, grain, farming machinery, stock, etc. Address Box 813, care of Orchard and Farm, Examiner Bldg., Los Angeles, Cal.

MISCELLANEOUS—FOR SALE



Do You Iron Today? If so, keep cool. Use the Imperial self-heating Iron. Makes its own gas, generated from kerosene. The cheapest and best iron made. Cole Lite & Sales Co., Lamp Dept., 1216 to 1220 E. 41st st., Los Angeles, Cal. Demonstration room, 246 S. Spring St

A. LEVIN, successor to Kelly Machinery Co. All kinds and sizes of Pipe, Engines, Boilers, Pulleys, Shafting, etc. Good second-hand Wire Rope, Manila Rope and Barb Wire. 524 Mission Road, Los Angeles

THOROUGHBRED dogs, cats, singing canaries for sale. Prize dogs and cats at stud. Prices reasonable. Sanitary Boarding Kennels, 4028 Grove st., Piedmont 7602, Oakland, Cal.

ALL KINDS second-hand harness. Buggy, $10; cart, $5; bulldog, $15. Thoroughbred. D. Hurton, Mission and Eighth sts., San Francisco.

FOR SALE—BARGAIN. One small power hay press, one small horsepower press. Schluckebier Hardware Co., Petaluma, Cal.

SPLIT REDWOOD POSTS
Any size, any quantity. Write for prices.
W. E. Whitmore, Cloverdale, Cal.

MISCELLANEOUS

EVERYBODY should read The Great Exchange story; mail order, real estate, investment and general information weekly; contains 20 to 40 pages of opportunities; offers, plans, secrets, bargains, cash buyers, etc., that will put you on the road to more money making. Your name printed in our opportunity directory and a special 2 months' subscription for 25c. Ad rates 3c per word for four insertions. Thousands of "live wires" to read your ad. Address The World's Mirror, Beaumont, Texas.

LONG DISTANCE FARMING IS DIFFICULT—Tulare county orchards and vineyards managed for absentee owners efficiently and economically. Land experted also. D. J. Whitney, Exeter, Cal.

HOROSCOPES scientifically written. Your marriage, best business, probable health shown. Write for terms, giving time of writing. Robt. R. Hill, 2188 Sutter St., San Francisco.

I WILL DELIVER a small box of lemons for $1.00, containing 4 dozen; prepaid to any part of the U. S. Ernest Vince, Santa Barbara, Cal.

LUMBER—Building Material

EVERYTHING FOR THE BUILDER—All kinds of second-hand building material; doors, windows, lumber, shingles, corrugated iron, cement trays at the lowest prices; send list and get estimate; country orders and carload lots a specialty. H. McKevitt & Son, Wreckers, 1849 Mission street, near 14th, San Francisco, Cal

LUMBER BARGAINS for poultry men and farmers. Special prices to reduce our stock this month. Woodhead Lumber Co., 5800 South Main street, Los Angeles, Cal.

CHIROPRACTIC COLLEGES

BE A CHIROPRACTIC DOCTOR—7000 now practicing; new method of curing and preventing diseases. Catalogue free. Dr. Charles A. Cale, President, Los Angeles College of Chiropractic, 931 South Hill St., Los Angeles, Cal.

PARCEL POST

CO-OPERATION (NOT OPERATED FOR PROFIT) reduces living expenses. Particulars and catalog from Co-Operative League, Commercial St., San Francisco.

ASSAYERS AND GOLD BUYERS

GOLD, amalgam, rich ore bought, cash; assaying, 60c. Pioneer Assaying Company, 636 Market St., opposite Palace Hotel, San Francisco, Cal.

COLLECTION AGENCIES

KNOX—Spreckels Building, San Francisco. Debts collected everywhere; no charge unless successful.

RAZOR BLADES SHARPENED

SAFETY RAZOR BLADES re-edged, 30 cents dozen. Send for mailing envelope. Howard's, Box 93, Los Gatos, Cal.

Take Care of Your Wheels

Spokes get loose because of dry weather. This weakens the whole wheel and reduces its resistance to the strain of driving. Careful motorists have their wheels tightened with Spoktite. That keeps them tight.

The **old** way was quite a job. The wheels had to be taken off. The car was laid up for days. It cost $10.00 or more. And at best it gave only temporary relief. But the **new** way changed all that.

How $1.50 Does the Work of $10.00

Like all necessary repairs, a better, quicker, cheaper way was sure to be found. So Spoktite was discovered—by a Californian. Spoktitening wheels is the modern way—done in 30 minutes, easy as oiling, costs only $1.50—and it is **permanent.**

Don't Neglect Good Wheels

Wood wheels today are made better than they ever were. They are the logical type of wheel.

But they cannot stand up forever under the terrific punishment that wheels get—the bumps, rocks, ruts, curves, quick starts and sudden stops—unless they are kept tight.

The warm, dry air of California and surrounding States shrinks the wood and loosens the spokes. You must watch them as carefully as you watch your springs, your radiator, your motor—any other part of your car.

Easy as Oiling

You don't have to take the wheels off. Just squirt Spoktite from the handy can into the cracks at the hubs and felloes. In thirty minutes your wheels are as tight as new—and they stay tight.

Many Other Uses

Spoktite is good for all good wood. Body squeaks, wagon wheels, boats, golf clubs, wooden tools, farm implements, doors, floors. No injurious effect on paint or varnish.

Try This Test

Look at the paint along each spoke. Shrinkage sometimes shows in cracked paint, or chipped off spots. Examine the joints at hub and felloes. Sometimes unpainted gaps will show.

Don't Delay

If you have even one loose spoke, don't delay—the cost of Spoktitening is too little to justify waiting.

In 30 minutes Spoktite expands the wood to its original condition. Then it seals the pores to prevent further trouble.

Wagon wheels are benefited by Spoktite as well as auto wheels.

At Garages, Auto Supply and Hardware Stores

Get a $1.50 can at your dealer's today. It contains enough for four wheels. Or if you do not care to apply Spoktite yourself, any garage or repair shop will do it for a moderate charge of $3 to $5.

THE WOODTITE LABORATORIES
Formerly "LIQUID WHEEL TIGHTENER COMPANY"
MODESTO, CALIFORNIA

SPECIAL COUPON

The Woodtite Laboratories,
Modesto, California.

Gentlemen—Please send me (charges prepaid) ..... (state how many) cans of Spoktite, at $1.50 per can ($2.00 in Canada). My dealer has none in stock.

Enclosed find remittance for.....

My Name .....

My Address .....

Town ..... State .....

My Dealer's Name .....

His Address .....

Woodworkers! Important!

We are specialists in scientific treatment of wood, and compound preparations for special purposes. Let us help you solve your unusual wood problems. "Woodtite," for application before your products leave the factory, prevents all swelling, shrinking, warping and cracking. Once "Woodtite" has been used, "Spoktite" is never needed.

GREAT SINGLE TAX DEBATE CONTINUES IN THIS NUMBER

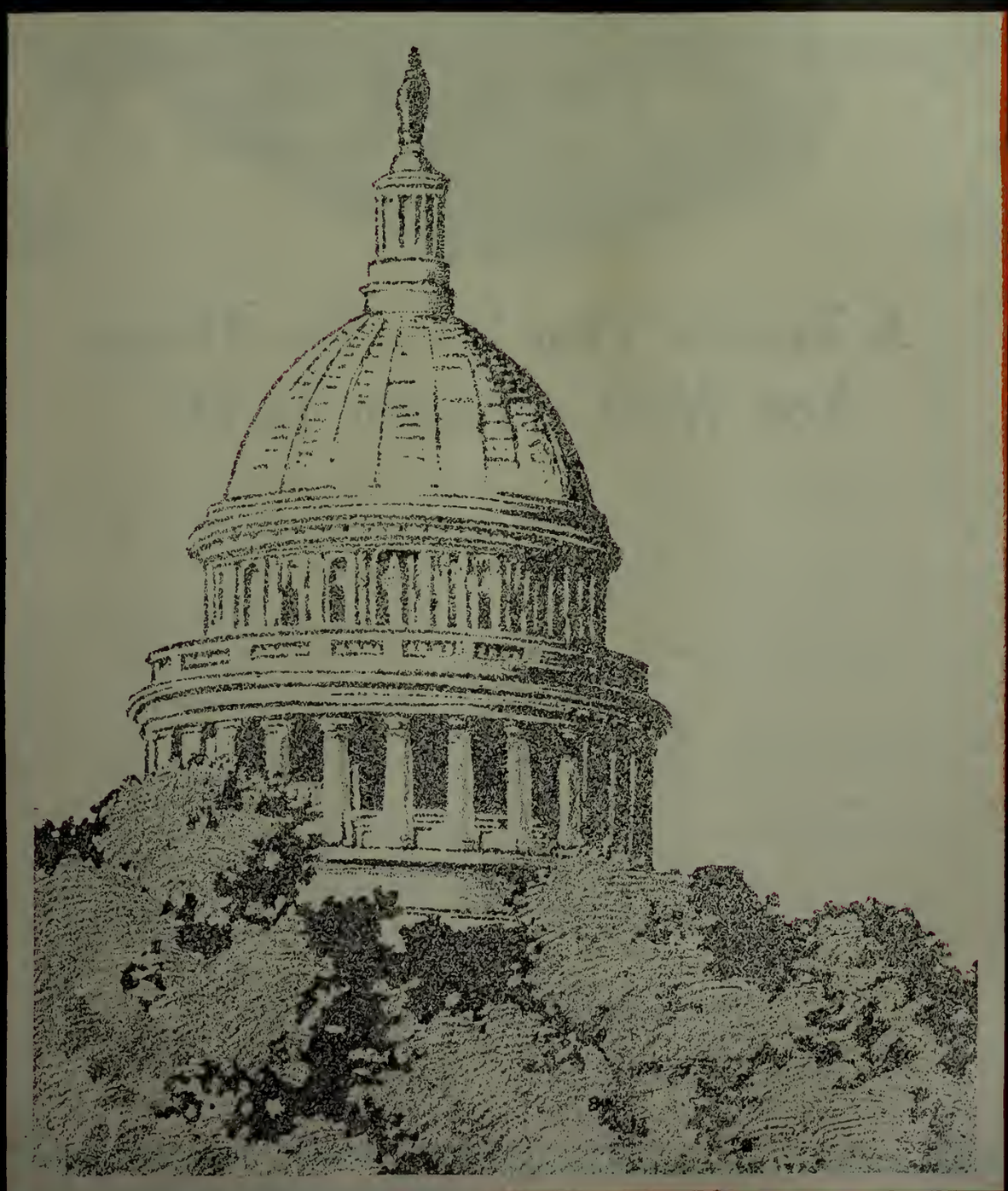
August, 1918

How to Make a Family Fruit Drier

5c Per Copy

ORCHARD *and* FARM

ESTABLISHED 1888



Wonderful Work at Washington

Cleveland Tractor

A Tractor That Does The Things You Want a Tractor To Do

The Cleveland Tractor is not confined to a narrow field of service. It does the things you want a tractor to do.

It plows, it harrows, it plants, it reaps. Its great power and small size enable it to work satisfactorily in difficult, awkward places. It works efficiently under and among small trees, close up to fence corners, around boulders, on hillsides, over ditches, gullies and rough ground.

With 600 square inches of traction surface, it goes through sand, gravel, gumbo, mud and even wet clay without packing the soil.

The Cleveland Tractor lays down its own tracks, crawls on them, and picks them up again as it goes along—just like the famous war "tanks."

It does *faster* and *better* work than was possible before. It plows 3½ miles an hour—eight to ten acres a day—equal to the work of *three* good men with *three* 3-horse teams under favorable conditions.

But the Cleveland is *far more than just a tractor.* With pulley and belt, it will saw, cut ensilage, pump—and do the things you demand of a stationary engine.

In addition it can be used for hauling the manure spreader, for grading, dragging logs and pulling road machinery.

It develops 12 horsepower at the drawbar and 20 horsepower at the pulley. Yet with all this power the complete machine weighs less than 3200 pounds, and can be housed in less space than is required for a single horse.

Rollin H. White, the well-known engineer, designed the Cleveland Tractor. It is built under his personal supervision, and is constructed for long service. The track sections are joined with hardened steel pins which have their bearings in hardened steel bushings. Gears are protected by dirt proof cases and are of the same high quality as those of the best trucks. The finest materials are used throughout.

Farming today demands the most comprehensive machinery obtainable—machinery that is useful in doing *many* different things—machinery that is adaptable to widely varying conditions.

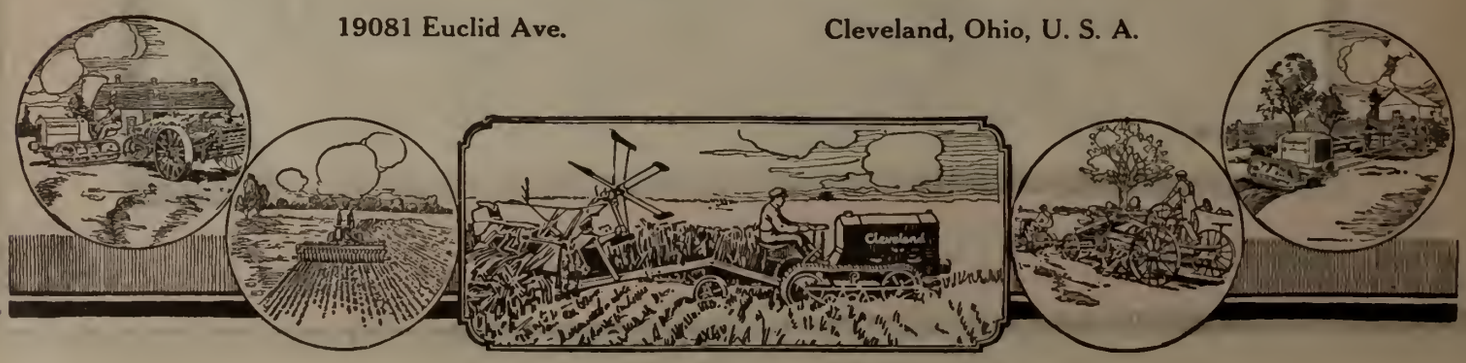
Thousands of farmers are looking to the Cleveland Tractor in the present crisis. And the Cleveland is meeting the demands—severe as they are—and is *making more money* for its owners.

It is truly the tractor that does the things you want a tractor to do.

Nearly every farm can use one or more Clevelands to speed up production and cut down costs. Write *today* for complete information and the name of the nearest Cleveland dealer.

The Cleveland Tractor Co.

19081 Euclid Ave. **Cleveland, Ohio, U. S. A.**



ORCHARD and FARM

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VOL XXX. LOS ANGELES, CALIFORNIA, AUGUST, 1918. NO. 8

Wonderful Work at Washington

UNQUESTIONABLY the greatest patriotic administrative and legislative achievement in all history has been that of President Woodrow Wilson and the Sixty-fifth Congress.

The stupendous work done at Washington during the past year has amazed the statesmen of Europe.

The performance of the colossal task before the President and Congress in upbuilding our little army, in strengthening our already very efficient navy and in providing airplanes, and munitions is today the greatest source of pride and inspiration to the true-born American patriot, while the feeling of satisfaction that he has in his nation's present ability to cope with the would-be destroyers of liberty overseas is vast and profound.

True, there were for a time partisan detractors of the President and his cabinet who decried everything they did or planned to do, but these have disappeared. They have gone down before the mighty voice of public disapproval.

The sensible part of the public knew that the task the administration had in hand was a titantic one. They knew that mistakes had been made and probably would be made, but they knew, too, that such men as McAdoo, Daniels, Baker and Hoover had but to be given a little time to prove their efficiency.

And they have proved it—proved it beyond peradventure, as their splendid records show.

We have said that the partisan criticism has disappeared and it is one of the greatest tributes to the American people that they simply would not stand for such pettiness—such evident attempts to clog the wheels of progress and to hamper the President and his noble co-workers in their highly efficient and glorious work of putting down that terrible menace to civilization—Prussian militarism.

A Magnificent Military Achievement

See what these men have done in the way of mighty patriotic service:

They have built up an army of over 2,000,000 men and 145,495 officers—several times the largest force ever mustered by Napoleon—upon which has been expended since April 6, 1917, the gigantic sum of nearly $5,000,000,000.

There have been bought, among many other things, 47,000,000 cotton undershirts, 2,000,000 pairs of rubber hip boots, 199,000,000 yards of denim cloth, 3,000,000 pairs of arctic overshoes, 178,000,000 pairs of woolen stockings, 40,000,000 pairs of shoes.

In horses and mules alone, the number today, 336,000, is a third larger than the entire human force comprising the army in 1917.

Ordnance has been contracted for to date to the extent of more than $5,000,000,000, monthly disbursements averaging $110,511,644—nearly ten times what the yearly appropriations amounted to in times of peace. Twelve thousand contracts have been let to 3300 separate concerns.

A year ago the first of the selective draft contingents went to the cantonments and drilled with broomsticks. Today there are rifles sufficient for an army of 2,000,000.

From a mere handful of machine guns the Army now has 80,000 completed and 350,000 ordered. Sixteen huge plants are at work on the bigger guns, the hardest problem that had to be faced.

Four Government shell plants under construction are to turn out 179,000 shells of all sizes daily; and 14 private plants are at work loading projectiles.

These are items in the ordnance program showing the gigantic scale upon which President Wilson is making good his promise to contribute the full resources of this country to the winning of the war:

Small arms ammunition, 5,000,000,000 rounds ordered; 1,500,000,000 delivered.

Projectiles, 80,000,000 ordered; 4,000,000 completed; hand grenades more than 55,000,000; rifle grenades more than 18,000,000.

A Gigantic Medical Corps Created

The Medical Corps today is equipped with 72,667 beds to care for the wounded and sick of the army, and new construction provides for 87,344 more; there are seventy-two hospitals, including base and general, in this country as against seven when the war broke out, and in France there is hospital bed capacity for almost 1 per cent of the entire strength of the expeditionary forces.

And so well handled is the health of the soldiers that the death rate from disease has been lower than 3.16.

When we entered the war the Engineer Corps of the Army comprised just 277 officers and 4125 enlisted men. Today its strength is 197,000, including 50,000 railway engineers soon to be in France.

On April 6, 1917, the aviation service of the Army numbered just sixty-five officers and 1200 men. Today there are approximately 160,000 officers and men. As against three flying fields we then had, we are now operating twenty-eight in this country alone. We then had less than 300 military planes, and we now have more than 5000 elementary and advanced training planes, and while only thirty American combat planes have been delivered abroad, Pershing has 1300 training and 600 combat planes ordered from France and England, and delivered.

Billions of Treasure for the New Navy

Splendid work has been done by Josephus Daniels in the upbuilding of our new and invincible navy, now second only to England in capital ships and equipment and at present growing faster than any other navy in the world. From one big shipbuilding plant are now coming a new 5000-ton ship every three days, and this will be continued as long as the war lasts.

In twenty-five months Congress appropriated for the navy nearly $3,000,000,000 or almost as much money as had been spent on the United States navy from its birth up to this period of munificent expenditure, and it will appropriate over $1,000,000,000 more before the year is out.

Before the war there were 2000 men in training at Newport; today there are 10,000 in that station. Norfolk, Va., had 1150; today, 16,000. The Great Lakes naval station 2000 before the war and 20,000 now. Yerba Buena, Cal., 850 before the war; 2000 now. These four stations have supplied 50,000 men to the navy in the first year of war. Reserve force training stations have been opened at many points.

The Naval Radio Service will in the next year reveal to the world some epoch-making improvements. At Harvard University more than 2000 men are training for the wireless, and 150 for other naval specialties. Columbia University has a class in naval engineering, and another in naval hospital treatment with 400 students. Yale has established a course in naval subjects and is training reservists.

The Marine Corps, which proudly claims the distinction of always being first to get into every fight and sometimes last to stop, has been expanded from 344 officers and 9921 enlisted men to 1200 officers and 33,000 enlisted men.

Our Splendid Shipbuilding Activities

Meantime, under administrative inspiration and behest, our merchant marine has been given an impetus never before known in all its history. On the 4th of July there splashed into the water at various ports eighty-nine vessels of all kinds, but largely of the 8000-ton type, to celebrate the nation's birth in a way that would make the Hun pause and take notice.

In the launching of the 474,464 deadweight tons of shipping the record of the Pacific coast was highest, for there were slipped into our waters from our own docks 250,700 deadweight tons. The San Francisco bay shipyards played the biggest part in the coast program, including in its launchings three steel ships of 11,880 each.

Though Congress has been a highly efficient force in this great war emergency it has but obeyed the will of President Wilson whose wonderful foresight and breadth of power in control of resources of men and treasure for the winning of the war have been the marvel of and pride of his compatriots and our allies as well as the despair of those who would have hampered and hindered him. In Woodrow Wilson one sees the true American type as exemplified in Washington and Lincoln. Washington freed the Continental States, with their 4,000,000 of people, from monarchical oppression. Lincoln emancipated 4,000,000 colored slaves, but into Wilson's hands has been given the instrument—American fighting efficiency—to emancipate the world from the dominance of the Hun.

Up-to-Date Methods of Drying and Canning All Products

LAST month Orchard and Farm printed an elaborate description of the type of community drier so successfully used in the Middle West and recommended by the United States Department of Agriculture.

Many persons report that they were able to make a drier like the one described, but there is also a demand for a home drier of small capacity and a description of this useful apparatus is given on this page.

There is also an outline of the cold pack canning method now in general use.

Further particulars may be obtained by writing to the National War Garden Commission, 210 Maryland Building, Washington, D. C., and asking for the government's free drying and canning manuals.

For general purposes the information found on this page will be a sufficient guide for the home canner or drier of fruit and vegetables.

Sun drying, artificial heat, and air blast drying are applicable in the home.

In general, most fruits or vegetables to be dried quickly must be cut into slices.

When freshly cut fruits or vegetables are to be dried by means of artificial heat, they should be exposed first to gentle heat and then to the higher temperatures.

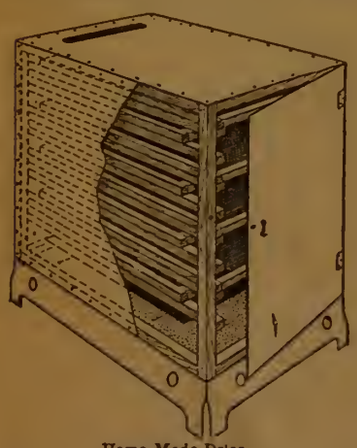
Generally, it is not desirable that the temperature in drying should go above 140 to 150 degrees Fahrenheit. Insects and insect eggs are killed by this temperature.

It is important to know the degree of heat in the drier. An inexpensive oven thermometer may be used.

Home-Made Family Drier—Cold Pack Process

TIME TABLE FOR DRYING

PRODUCTS	Blanching time	Approx. Drying time	Temperature (Fahrenheit)
	Minutes	Hours	Degrees
String beans	6 to 10	2 to 3	110 to 145
Wax beans	6 to 10	2 to 3	110 to 145
Lima beans	5 to 10	3 to 3½	110 to 145
Garden peas	3 to 5	3 to 3½	110 to 145
Sweet corn	5 to 10	3 to 4	110 to 145
Carrots	6	2½ to 3	110 to 150
Parsnips	6	2½ to 3	110 to 150
Onions	5	2½ to 3	110 to 140
Leeks	5	2½ to 3	110 to 140
Beets	6	2½ to 3	110 to 150
Cabbage	10	3	110 to 145
Pumpkin	3	3 to 4	110 to 140
Summer squash	3	3 to 4	110 to 140
Celery	3	3 to 4	110 to 140
Swiss chard	3	3 to 4	110 to 140
Okra	3	2 to 3	110 to 140
Cauliflower	6	3 to 3½	110 to 145
Brussels sprouts	6	3 to 3½	110 to 145
Rhubarb	3	.....	110 to 145
Peppers	.....	.....	110 to 140
Spinach, Parsley	4 to 6	3	110 to 145
Tomatoes	1 to 2	.....	110 to 145
Asparagus	5 to 10	4 to 8	110 to 140
Berries	.....	4 to 5	110 to 140
Cherries	.....	2 to 4	110 to 150
Plums	.....	4 to 6	110 to 150
Apricots	.....	4 to 6	110 to 150
Apples	.....	4 to 6	110 to 150
Pears	.....	4 to 6	110 to 150
Quinces	.....	4 to 6	110 to 150
Peaches	.....	4 to 6	110 to 150



Home-Made Drier

How to Make a Small Drier

A home-made cook stove drier can be easily made as follows: Base 24 by 16 inches; height 36 inches. A base 6 inches high is made of galvanized sheet iron.

This base slightly flares toward the bottom and has two small openings for ventilation in each of the four sides.

On the base rests a box-like frame made of 1 or 1½-inch strips of wood.

The two sides are braced with 1¼-inch strips which serve as cleats on which the trays in the drier rest.

These are placed at intervals of 3 inches.

The frame is covered with tin or galvanized sheet iron which is tacked to the wooden strips of the frame.

Thin strips of wood may be used instead of tin or sheet iron.

The door is fitted on small hinges and fastened with a thumb latch. It opens wide, so that the trays can be removed easily.

The bottom ot the drier is made of a piece of perforated galvanized sheet iron.

Two inches above the bottom is placed a solid sheet of galvanized iron which is 3 inches less in length and width than the bottom. This sheet rests on two wires fastened to the sides of the drier. This prevents the direct heat from coming in contact with the product and spreads the heat more evenly.

Trays and Ventilator

The first tray is placed 3 inches above the radiator. The trays rest on the cleats 3 inches apart.

The frame of the tray is made of 1-inch strips on which is tacked galvanized screen wire, which forms the bottom of the tray.

The tray is 21 by 15 inches, making it 3 inches less in depth than the drier. The lowest tray is pushed to the back, leaving the 3-inch space in front. The next tray is placed even with the front, leaving a 3-inch space in the back. The other trays alternate, permitting the heated air to pass around and over the trays.

A ventilator opening, about 2 inches wide and 6 inches long, is left in the top of the drier.

Read the Time Tables

Time tables for drying and canning are given herewith. Blanching is [illegible] boiling for which correct timing [illegible] also given.

The product should be dried un[illegible] it is leathery and pliable. It sh[illegible] not be packed immediately after [illegible]ing but should be "cond[illegible]tioned."

This can be done by placing the m[illegible]terial in boxes and pouring it fr[illegible] one box to another once a day f[illegible] three or four days.

If it is then found to be too m[illegible] it should be returned to the drier.

COLD PACK CANNING

First—Select fresh, ripe, firm fruit o[illegible] vegetables.

Second—Grade for ripeness, size a[illegible] quality. Wash thoroughly and pre[illegible]pare—trim or peel, etc.

Third—Blanch (dip in boiling water [illegible] See time table for blanching v[illegible]rious products.

Fourth—Dip quickly in cold water.

Fifth—The cans should be h[illegible]t, t[illegible] rubbers and tops ready. Pack pr[illegible]uct in the cans. Cans do not n[illegible] to be full in order to keep. Add [illegible] level teaspoon of salt to each [illegible] of vegetables and fill with [illegible] water; add hot syrup to fruit[illegible]

Sixth—Use only good rubbers. S[illegible] jar covers down tight, then tur[illegible] quarter of a round back.

Seventh—Sterlize in a wash bo[illegible] you do not have a can[illegible] Fill with hot water to a p[illegible]nt [illegible] inch above top of cans, and [illegible] hard just the length of t[illegible] in the time table. Count t[illegible] water begins to boil. Put a r[illegible] of lath under cans.

Eighth—Lift cans out [illegible] tighten covers, and set [illegible]

TIME TABLE FOR CANNING

PRODUCTS	Scald or Blanch	Hot Water Bath Outfits at 212 degrees	Steam Pressure 5 lbs.	Pressure Cooker 10 to 20 lbs.
	Min.	Min.	Min.	Min.
Apricots	1 to 2	16	10	5
Blackberries	.....	16	10	5
Blueberries	.....	16	10	5
Cherries	.....	16	10	5
Cranberries	.....	16	10	5
Currants	.....	16	10	5
Dewberries	.....	16	10	5
Gooseberries	.....	16	10	5
Grapes	.....	16	10	5
Peaches	1 to 2	16	10	5
Plums	.....	16	10	5
Raspberries	.....	16	10	5
Rhubarb	1 to 2	16	10	5
Strawberries	.....	16	10	5
Citrus Fruits	1½	12	6	4
Apples	1½	20	8	6
Pears	1½	20	8	6
Pineapple	10	30	25	18
Quince	6	40	25	20
Figs	15 to 20	40	25	20
Tomatoes	1 to 3	22	15	10
Egg Plant	3	60	45	30
Pumpkin	5	90	40	35
Squash	5	90	40	35
Corn	5 to 8	180	60	45
Hominy	5	120	60	40
Dandelions	10 to 15	120	50	25
Spinach	10 to 15	120	50	25
Greens, all kinds	10 to 15	120	60	35
Asparagus	2 to 4	90	50	25
Beans (lima or string)	5	120	60	40
Okra	5	120	60	40
Peas	5	120	60	40
Brussels Sprouts	4 to 10	90	50	25
Cabbage	6 to 15	90	60	35
Cauliflower	3 to 6	90	50	25
Beets	6	90	60	35
Carrots	6	90	60	35
Sweet Potatoes	6	90	60	35
Parsnips, Turnips, etc	6	90	60	35

Everybody Is Reading This Great Debate—Here Is the Second Installment

WOULD SINGLE TAX AID OR INJURE THE LAND OWNER?

Vivid Presentation of Each Side of the Great Question by the Leaders of the Two Armies of Voters Who Are For and Against the Amendment.

It Would Populate the State

BY LUKE NORTH,

Vice President of the National Great Adventure for Single Tax

IT IS the high price of land that keeps settlers out of California—and twenty million waiting acres idle!

The few who came to this new Eden first preempted all the land within reach, not to use, but to monopolize and speculate with. They took thousands of acres, hundreds of sections—not to till and plant, but to hold out of use until the crowds came here and paid the preemptor's rent or interest for the rare privilege of living in California. That in rough is the situation. It is the history of every new territory in Christendom. The first comers, or, later on, those with the longest purse and the keenest sense of how to enrich themselves at the expense of the need of the whole people, procure in many different ways—by crown or legislative grant or by purchase for a nominal price—vast areas of the richest lands, with their timber, oil and minerals, and hold them idle to reap the rising values caused by the increase of population.

This is a false and vicious system that produces slums in the city, mortgaged homes, farm tenantry, and today in California, after twenty years of the most astounding land booming, advertising campaigns, and colonization schemes—twenty million idle acres!

Where the Lion's Share Goes

It has produced, also, in California a numerous class of hard-working people whose economic interests are not to add anything to the common wealth, but merely to take away, in high prices, rent and interest the lion's share of the earth's yield. Quite an army of competent men and women in this State do nothing at all except sell, lease and mortgage land, collect land rent and interest and adjudicate mortgage foreclosures. Very few of them get more than a decent living for their hard work, and many get less. The vast stream of wealth they handle goes mainly to a few rich land owners, the original preemptors or their heirs and assigns.

The amount of money handled every year by the California army of real estate brokers and advertisers is enormous. It is equal to, indeed it is, the interest on the land values of the State. And every penny of it at first must come out of the yield of the earth. It can come from no other source. It comes from the mines, farms and oil wells, and is produced by human labor applied thereto. And more than three-fourths of it goes to the owners of the land!—not to those who use the land, not to developers, builders, farmers, storekeepers—not to any of those engaged in any useful occupation, but to those who merely own the land and do nothing but collect rent and interest.

Story of Three Young Women

Here is a family of three young ladies who have a home in Paris, one in New York, and one near San Francisco. They have a retinue of nearly a hundred servants, chauffeurs and gardeners. They have an income of $[illegible]000,000 a year—from owning the land on which other people's enterprise and industry have built stores and office buildings in San Francisco and Los Angeles, and they own one ranch of 200,000 idle acres.

Some ancestor of theirs acquired their land holdings for a few hundred dollars—and did nothing but hold on to it.

California is "richer" in such instances than any other State except New York—and it is almost a certainty that the next New York legislature will adopt at least some so-called approach to Single Tax by taking some of the unearned incomes from land values increase will be returned to the public treasury. Nearly every state in the Union, and the Government itself, will soon be forced to follow suit from the unearned increment of increasing land values. [illegible] are interested now only in

(Continued on Page 31)

It Would Ruin Our Farmers

BY ALBERT E. KERN,

President Anti-Single Tax Association of California

THE question of whether or not a given piece of land is held at a high or low price is a matter of opinion. The real value of land is, or at least should be, based upon its production—the amount of return which it will bring to its owner when properly farmed to the crop to which it is best adapted. Then again the ability of the farmer must be taken into consideration, for I have seen two neighboring farmers growing the same crop upon equally good soil, one at a handsome profit and the other at a dismal failure.

In California, as in all other States, we have some land which is held at prices which cannot yield an adequate return, but the vast majority can be, and is being bought every day at a reasonable price, and is being bought by our California farmers themselves, who are, as fast as possible, absorbing the productive idle land of this State.

We agree with the Single Taxers that we need more population upon our idle acres. Mr. North claims that the Single Tax system would cause them to come. We know positively of a case within the last few months of a man from New York who became interested in buying a tract of land in California, but when he found that the Single Taxers were at work in this State, he promptly withdrew his offer and refused to become interested in a State where there was a possibility of adopting the Single Tax system.

Would you infer from this, that the Single Tax would cause our idle land to be settled upon?

Large Land Holdings Are Disappearing

It is true that the early settlers in California acquired large tracts of land, but we disagree with Mr. North in his assertion that they were acquired for speculative purposes. On the contrary they were acquired for use, and the only practical use to which they could be applied in those days was that of grazing. Conditions have changed as to use, and today we find those millions of acres of grazing lands turned into intensified farming. This change has been entirely brought about by the law of supply and demand.

The large tracts of land, which have been the object of such violent attack on the part of the Single Taxers, have been very largely absorbed, and today the only large single holding which exists in California is being rapidly sold in smaller tracts for agricultural purposes. Thus will all the productive land in California eventually be utilized to meet the demand.

But why attack the man who happens to own the fee simple title to land? It is because the Single Taxers believe, as their leader has declared, that "private ownership in land is a bold, enormous wrong." Certainly it can be for no other reason than such a belief, for if you will go through the rural districts of California, you will find a vast acreage which is being farmed by tenants, not at an "excessive, high cash rental," but on the share basis which yields the owner usually about one-third of the crop and out of which he is compelled to pay all taxes and upkeep.

North's Attack on Real Estate Men

Mr. North is wandering far afield when he attacks the real estate brokers and advertisers in California. He complains that every penny of their profit comes out of the earth and that the money is divided between the broker and the land owner, and "not to any of those who are engaged in any useful occupation." I would ask Mr. North if the adoption of Single Tax would eliminate the real estate broker? Is it not the real estate man who does more than any other man in the community to assist that community to bring settlers upon the soil and help to bring about the very thing which we all are striving for, namely, new settlers, greater population? Does not the settlement and improvement of

(Continued on Page 30)

Our Single Tax Debate

THE Single Taxers are preparing for a big drive this summer and fall. They polled over 260,000 votes in California in 1916, and they say that they will poll 70,000 more at the next election and win the State.

Do the farmers want taxes levied on land values alone? What are the arguments for and against Single Tax? Orchard and Farm is publishing a great debate on the question:

Would Single Tax Aid or Injure the Land Owner?

Luke North, vice president of the National Association known as "The Great Adventure for Single Tax," puts the case for the Henry George theorists, and Albert E. Kern, president of the Anti-Single Tax Association of California, replies. In the next number Mr. North will argue against the opponent of the George theory and in turn will be answered by the Anti-Single Taxer. And so the debate will continue back and forth up to election time, the last installment to be published in the November Orchard and Farm.

Anyone who owns land will of course be affected by the proposed Single Tax amendment to the Constitution of California and, therefore, will want to read every word of this great debate.

All voters, and particularly students of political economy, will also find the controversy a highly interesting and educational one.

Being vital to our farmers, the facts set forth in this debate will be closely perused by them.

If you are not a subscriber to Orchard and Farm send 25 cents now to this office and thus secure all the numbers containing this tremendously important feature—a liberal Single Tax education in itself. Do this today!

Help From Mexico

Thousands of Laborers Coming

PURELY as a war emergency measure the government has removed the restrictions on the importation of Mexican labor and already thousands of farm laborers have been arranged for by the ranchmen of this coast.

Within the next two or three months it is expected that over 100,000 farm and mining laborers will be imported from our sister republic.

For the period of the war, Mexicans desirous of entering the United States to engage in farming or mining occupations will be given every assistance by the United States Employment Service of the Department of Labor. By the terms of the new order, Mexican immigrants will, during the present emergency condition, be exempt from the head tax, literacy test, and contract labor provision imposed by previous rulings.

Pledge by Employers

Our farmers will be interested in the following pledge which they must make to secure Mexican labor:

1. That the employer will abide by and comply with all the terms of the new regulations.

2. That the employer will pay the current rate of wages for similar labor in the community in which the admitted alien is to be employed.

3. That with respect to housing and sanitation the laws and rules of the State in which the laborer is to be employed will be observed by the employer. If employed in a State that has no law on this subject working conditions must be satisfactory to the Secretary of Labor.

4. That the employer will promptly advise the officer in charge at the port of entry of any change in his plans as originally disclosed regarding Mexican laborers employed by him.

5. That the employer will immediately notify such officer on learning that any alien admitted to him purposes to leave his employ, and will furnish all information available with respect to the place to which the alien is going and the name of the party for whom such alien is to work.

Checking Them Up

6. That the employer will promptly notify such officer whenever any alien admitted to him has left his employ (without his previous knowledge of the alien's intention to do so), and will furnish all possible information to assist immigration officers in ascertaining whether or not the alien has entered other employment, or whether or not the conditions of the new regulations are being observed.

7. That 15 days before the expiration of the period for which the alien is admitted to him the employer will advise the inspector in charge at the port of entry whether or not it is his and the alien's desire that the latter shall remain with the former for an additional period of employment.

8. That if it becomes necessary to deport any alien (or any alien family) admitted in pursuance of the new regulations because of their violation or non-observance, the expense of removal of the alien from the place where apprehended to the boundary shall be borne by the importer: Provided, That when the cause of deportation arises while the alien is employed by a person other than the importer without the consent of the latter, then such expense shall be borne by such subsequent employer.

9. That the employer shall retain a portion of the admitted alien's wages and transmit all of this money for deposit in the postal savings bank in the manner specified above.

Of course it is the intention of the government to see to it that all these Mexicans go back to their former places of residence as soon as the war is over or within a reasonable time, and yet it is quite likely that not a few of them will have scattered over this country in such a way as to make their return rather a difficult matter.

It will be a game of hide-and seek, run-and-catch for some years after the war.

New Grasshopper Slayer

Much Cheaper Than the Bran-Mash Formula

DEVASTATING grasshoppers are more common in the Pacific States than is generally supposed. It is true that we do not suffer from the terrible plagues that often clean up whole townships in Kansas, Nebraska and the Dakotas, where the air is so full of them at times that the sun is obscured and where fields are eaten bare of every vestige of verdure over night.

But while there has been no general plague of 'hoppers in this State for many years a great deal of destruction is wrought from season to season by the pests.

In the San Joaquin and Sacramento valleys they do considerable injury to grasses, foliage of deciduous trees, cultivated and wild, as apple, apricot, almond, peach, pear, plum, prune and quince. They attack nearly all cultivated crops and succulent vegetation, as alfalfa, clover, corn, grape, etc.

Grain and hay crops of barley, oat and wheat often suffer from the attacks, but they are usually harvested before the grasshopper is at its worst.

Troublesome This Year

Somehow, perhaps owing to the natural perversity of insect life, there has been more trouble from this source during war time, when we were trying to boost the food production, than for some time previous. For this reason our producers will be glad to note that a new formula for a poison in fighting grasshoppers has been tested out and found to be the equal, if not the superior, of the bran-mash formula, at least in the particular region where it has been used, according to a report to the United States Department of Agriculture from the entomologist of Nebraska.

The regular bran-mash formula composed of 25 pounds of bran, 1 pound of arsenic or Paris green, one-half gallon of molasses, and 6 lemons was found to cost about $1.75 at current prices in western Nebraska.

Here's the Cheap Dope

By using 15 pounds of alfalfa meal and 10 ounces of Paris green, at the same time increasing the molasses to 1 gallon and the water to 6 gallons, and reducing the number of lemons to 3, it was found that the same bulk of poison mixture was obtained for approximately $1 at current prices.

The molasses used was cattle molasses, obtained at a beet sugar factory for about 5 cents a gallon.

Alfalfa meal has such swelling power when plenty of water is added that the 15 pounds makes approximately the same amount of poison mixture as 25 pounds of bran.

They Like Poisoned Bran So Well They'll Eat it Out of Your Hand

It has been found that in warm climates, such as that of California, the poisoned baits prepared with alfalfa meal must be used almost immediately, as they sour if kept until the following day.

Another objectionable feature is that the meal is usually so finely ground that it can not be distributed without considerable waste by the use of an end-gate grain seeder, such as is employed in some portions of the country in distributing the bait.

The greatly lessened expense of fighting grasshoppers by the use of the alfalfa meal mixture induced many Nebraska farmers to combat the pest much more energetically.

Auto Aids Farmer

Some Amazing Figures

FARM values during the sixty years after the introduction of the automobile increased at three times the rate of the previous twenty years, despite the fact that the rate of increase of population, and particularly of farm population, decreased in the latter period.

Assuming that the farmer uses his car an average of only ten miles a day, and that he is the only passenger, and that if his car were taken away and a horse substituted, the result would be an aggregate loss to our farmers of 200,000 years in every year.

So much land is needed to raise the food necessary for the horses of the United States that if it were put into cultivation with the aid of tractors the resulting product in one year would pay our national debt, including all of the Liberty bonds issued to date

Staggering Statistics

The number of employes in the automobile industry is 830,000 and that they and their dependents would populate the city of Chicago, or Philadelphia, Boston and St Louis combined, or any one of 12 states or of 7 states combined.

The wages paid annually, $747,000,000, are approximately equal to all the gold in circulation in this country

The capital employed, $1,297,000,000, is greater by $250,000,000 than that of all the national banks, greater than the combined capital stock of the Pennsylvania, New York Central, Chicago and Northwestern, and the Chicago, Milwaukee and St. Paul railroads and is more than twice as great as the capitalization of the Standard Oil group of thirty-five companies.

A Railroad Comparison

The number of passenger miles by automobile is not less than 10,000,000,000 greater per year than that of the railroads.

The seating capacity of automobiles is 25,000,000 persons, compared with 3,500,000 for the railroad cars. If the railroads would undertake to handle the number of persons now carried by automobiles it would require duplication of all of their passenger locomotives and cars at a cost of more than $1,000,000,000, as well as duplication of their tracks.

It was thought that our entry into the war would change the automobile situation on this coast so that there would practically be an end of the selling industry. But despite the Government curtailment of the passenger auto production the Eastern factories are continuing to slip cars through to the coast with increased speed.

On the Firing Line

FIVE hundred Los Angeles girls are helping to pick fruit in the San Fernando Valley. They [illegible] been doing good service in pit[illegible] apricots.

War crops of corn are in fairly good condition in hoth Oregon and California. The production of corn in California this year will hardly equal the 1917 figures of 2,400,000 bushels, but it is a little too early to make a close estimate.

The fig crop of California is announced by Horticultural Commissioner Hecke as 99 per cent of that of a normal year. In Fresno, Madera, Merced, Stanislaus and Ventura counties the crop is reported at 100 per cent.

Oranges are reported as an 85 per cent crop in California and lemons as 86 per cent.

Walnuts in Los Angeles county will be an 80 per cent crop, or two per cent above the State average of 78 per cent.

Imperial Valley alfalfa growers have been making a big fight against the alfalfa caterpillar. The campaign has been quite successful in most districts.

Riverside county dairymen have been protesting against the shipment of sugar beet pulp to the East. They want to see it offered for sale to California dairymen before it is sent out of the State.

Oregon is growing enormous crops of potatoes this season and some of the ranchers are beginning to get anxious about markets.

Over 240 head of fat hogs were auctioned at Tulare recently. The Cudahy and Wilson companies of Los Angeles bought most of the stock. The prices were from $14.50 to $15.60.

Butte county rice growers have been up against it for water, the flow in the Feather river running down to 450 cubic feet. In normal years it is above 800 feet. An attempt is being made to procure water from Lake Almanor.

Glenn county barley men have formed an association, the stated object of which is "to furnish the crop to the consumer at a living price and still receive a fair return for the grain sold."

There are over 50,000 acres of heans planted in the Sutter Basin of the Sacramento Valley.

The California State Land Project for providing farm homes on long-time contracts is panning out very well. There has been some trouble about water rights, but this is being adjusted.

Sugar purchased for canning purposes cannot be used for other purposes, as the Humboldt county people are finding to their sorrow. They have been compelled to return large quantities to the seller under a ruling by the county food administrator. As high as 400 pounds were bought by some consumers, but they had to give up the sugar when proof was brought that they were not using it [illegible] preserving fruit.

Arizona's war crop of cantaloupes will amount to 1000 carloads. There will be about 100 cars of watermelons.

Central California's tomato crop will [illegible] up at a little over 80 per cent [illegible]toes have not done well in the [illegible] Clara or Sacramento districts [illegible] to lack of water. One grower [illegible] Mountain View district who [illegible] 800 acres says he will get 15 [illegible] to the acre as against 12 tons [illegible] year.

[illegible] Valley has sent out a big [illegible] cantaloupes despite the labor [illegible]. Increased freight rates will [illegible] result in a lighter acreage [illegible].

[illegible] cantaloupes are not doing [illegible] is only 65 per cent of [illegible] will be a heavy [illegible] San Joaquin Valley [illegible] greatly increased

Bull Calf Sold for $106,000

AT the annual sale of the Holstein Friesian Association in Milwaukee a six months old registered hull calf was sold in the auction ring for $106,000—nearly twice as much as ever before was paid for one such animal.

Elbridge A. Stuart, president of the Carnation Milk Stock Farm, located at Seattle and Oconomowoc, was the purchaser of the bull, an imported one. Its name when purchased was Champion Sylvia Johanna 231405, but it was rechristened Carnation King Sylvia. Mr. Stuart, when asked regarding the purchase, said:

"I merely want to do my bit toward helping improve the dairy industry of the breeding of better Holstein cows. Judging from the records of the ancestors of this bull, I believe I have purchased the best bull in the world. His dam, May Echo Sylvia, holds the world's record for milk production. She produced 152.10 pounds of milk in one day and 41 pounds of butter in one week. Another of her records is 4,196.90 pounds of milk in thirty days, which is also the world's record. She has a total of six world's records.

"Carnation Farms own the largest herd of registered Holsteins in the United States. Our farms are operated as model dairies and breeding farms for the benefit of dairymen supplying milk to our evaporated milk condenseries. Our company being interested in the distribution of unsweetened canned milk, we must have the best quality of fresh milk. Again, we want the dairymen not only to produce milk of good quality, but also to produce a maximum quantity at a minimum expense. The only way to accomplish both purposes is to have good cows, with high producing records."

The $106,000 bull calf will be insured for $100,000 and shipped by express on the Chicago, Milwaukee and St. Paul's limited Columbian train to Carnation Farm, near Seattle.

How Our Family Is Growing

GATHER around, folks, and listen to a little talk by the editor.

Of course you must realize that in these war times newspapers and magazines don't grow very fast in circulation. Farm journals are no exception. People are inclined to grip the dollar till the eagle gives a honk like a law-breaking speedster.

But, strange to say—or maybe not so strange—the Orchard and Farm family is growing like a corn field on a hot, moist day.

During the past month over 3500 new names have heen added to our subscription list. These names have come in so fast they have kept the mailing clerks busy.

But why these 3500 new names?

Why should the Orchard and Farm family grow apace despite the war, while other farm papers languish?

Well, it makes us blush to say so, but Orchard and Farm has been turning out a more popular and more interesting paper than the others. The others are pretty good, but as J. Oscar Know of Davis, Cal., wrote in the other day, this paper "is more in touch with the big things being done by the big people." Mr. Know subscribed for six years. Perhaps it's bad taste to make a play upon a name like that of Know, but somehow we can't refrain from remarking that his is an appropriate cognomen.

We enjoy, too, the nice little note from O. P. Osborn, R. 4, Porterville, Cal., a new member of our family, who tells us that "Orchard and Farm is fascinating and especially instructive." Also what F. W. Wallraff, Route A, Box 125, Placerville, Cal., says about our paper being "the hest publication on the coast and that no ranch is complete without it."

Articles that have been particularly commended of late were that of E. Clemmons Horst on "My Dehydration Experience." "Orchard Intercrops," the System series and the bee and rabbit stories. Then there were the pinto bean articles. There was quite an excitement over them. "The Curse of California" also aroused big interest. But the thing that has caught on with the best grip has been the Single Tax dehate. When we come to answering the letters about that debate sometimes we are sorry we ever started it. But no; if we can help to instruct our family on that or any other subject it's all to the good. So fire in your letters.

Well, that's ahout all, except that the Grange is taking a hig interest in our paper these days and the Grangers are saying all sorts of pleasant things about their department.

And—here's where we hlush again—Mr and Mrs. William Hughes of Hillsboro, Ore., honored members of the family, are kind enough to write: "Good for you! So many editors give no sign but that they are living in the stone hatchet age that we are glad you are living and writing today."

These things are all very heartening. They make us feel that we are on the right track.

A Wonderful Fair

EVERYBODY'S going to the California State Fair!

Bigger, brighter and in every way better is the promise made by the management of the great show, and if it lives up to the brag, as doubtless it will, it will be worth traveling many miles to see, as people did last year.

And that's exactly what they'll do this year. Some of them will journey 1000 to 2500 miles to bring their exhibits or to get a look at the other fellow's. There's mighty few other State Fairs that attract people from such great distances.

Big attractions are offered, and among the novelties will be a great sheep-shearing contest, a magnificent rabbit show and a homing race of war pigeons.

The Animal Exhibits

Livestock, livestock, livestock! You'll see more and better cattle, sheep, swine and goats than you ever saw before in all your life. There will be tractor exhibits, farm machinery exhibits—all sorts of exhibits. The prizes hung up amount to nearly $30,000.

Here are some things the management wants to impress upon exhibitors:

If you cannot take your exhibits with you, ship them to Sacramento in care of Chas. W. Paine, Secretary, State Board of Agriculture.

Before shipping be sure to wrap each entry separately and mark it with your name and address, also with the class in which you wish to enter. All crates must be so constructed that the cover can be taken off by removing screws or bolts and when returning the shipment the same crates can be used and returned in the same manner as when received.

Ship early enough so that exhibits will arrive at the Secretary's office before 6 p. m. on the day preceding the opening of the fair.

Address all communications to Chas. W. Paine, Secretary State Board of Agriculture.

Two Stock Parades

There will he two stock parades during the fair, of which due notice will be given exhihitors. All stock will be required to participate in both parades, unless released by the director in charge. Exhibitors failing to comply with this rule will not be paid premiums awarded their exhibits. All bulls two years old and over must be led and shown, both in parade and ring, with strong, suitable leading staffs.

Horses winning rihhons will be required to parade at the night horse show on occasions to he fixed hy the directors.

For the purpose of making the premiums in the livestock department more valuable and to prevent imposition, the hoard of directors has decided that the premium ribbon shall designate the breed, class and section, and a neatly prepared certificate shall he issued by the secretary, if requested by the exhibitor, naming the successful exhibitor, his residence, name of animal and the class in which the same has obtained a premium.

The experience of years at the State Fair has proved the impracticability of establishing a system of judging automobiles, machinery, mechanical and manufacturing exhibits on their merits, and many possihle exhibitors have remained away. For this reason, the directors have decided to follow the practice in vogue in all large Eastern fairs, and no premiums will be awarded in these classes.

The railroads will carry exhibits free of charge.

The fair will open August 31st and close September 8th.

"Extravagance costs hlood, the blood of heroes."—Lloyd George

Yucaipa Apple Story

Told by a Preacher

YUCAIPA VALLEY is showing up splendidly as an apple raising section and is now counted as one of the best districts in California for the production of that staple fruit.

Here is a tale told by the Rev. A. L. Bear, pastor of the Methodist Church of Yucaipa, to his congregation recently in the course of a sermon:

"May I include the story of one apple tree—I mean a true story. I have my witness. I got this story from a member of this congregation—here it is: Picked and packed from one Yucaipa apple tree last year 25 packed boxes; sold at $2 per box ($50) from one tree; counting 80 trees to the acre—well, it doesn't require an expert to determine the result; counting 50 cents per box for picking and packing, $1 per tree per season for spraying, then add all other expense of pruning, irrigation, cultivation, etc. I miss my guess if you don't have a handsome profit left.

"You say that tree is an exception; maybe so, but it surely gives us some idea of what can be done, and I see no reasons why such a thing cannot be repeated.

New Day for Fruit Grower

"The day of fruit industry has begun. Old things are passing away—the old way of handling, the old way of shipping, the old way of waste. Our new plant now under construction in our valley means a new day for the fruit grower of Yucaipa—nothing will be wasted, the culls will be carefully peeled, cored and evaporated, not even the peel or core will be wasted.

"Don't anybody worry about the market. There is only a small portion of the earth where fruit can be successfully grown, and with the new process of preserving the fruit and with the facilities for shipping, our fruit is now being shipped to all quarters of the earth. The men who grow wheat, corn, cotton, sugar, tea and coffee will want Yucaipa apples and will be able and willing to pay a good price for them.

"California has about cured me of being a pessimist. So often things have turned out so much better than I expected I have quit knocking and gone to boosting. When I came to California 13 years ago things didn't look right to me. I bought a horse and buggy in Riverside and started out to see the country. I drove up into the Perris Valley. I was critical and skeptical. That is where I lost out.

Hold Onto Your Orchards

"I could then have bought land at about one-eighth what it is now worth. I drove on up into Winchester valley. I drove all over Winchester trying to find enough water to water my horse, for the windmills had stood still for several days. Their water supply was as uncertain as the wind. I could have picked out a ranch at about $20 per acre. Visit the Winchester valley now. Hundreds of acres in alfalfa, hundreds of acres in orchard, the electric motors humming over the valley, concrete boulevards, land worth from $200 to $300 per acre. The lesson is stop knocking and go to boosting.

"I appreciate the fact that the people of this valley who planted these orchards have had quite a struggle, but the harvest time is just ahead of us. Listen: A word to the wise—Hold on to your orchards, just as you hold on to your Liberty bonds. These orchards are now beginning to pay and soon they will pay somebody well. I know there is not much money in an orchard for the first few years, just as there is not much money in children for the first few years, but if you prune at proper time and give the boy the proper training you will be paid for all the expense you put into him."

Of course there are other sections of the coast that raise apples—big crops of them, and good ones, too. Yucaipa Valley has only come into the field of late years and can hardly be compared with the Hood River and Wenatchee valleys in the extent of its products as yet. But it has a wonderful soil and a climate well adapted to this kind of fruit, and it is going to make the other apple-growing districts look to their laurels.

Enlist Slacker Apricot Trees

How an Oakland Orchardist Did It

A WAR conservation fruit tree bearing a heavy crop or forty varieties of pit fruits has been grown by Dr. J. T. Mutchmore of Oakland, Cal.

In Dr. Mutchmore's garden lived an I. W. W. Moorpark apricot tree which refused to multiply and bring forth fruit of sufficient quantity to help solve the allied food problem, although drawing it sustenace from American soil. Finding that the tree was inside the draft age of thirty-one years, Dr. Mutchmore sawed it down to within four feet of the ground. In February, when the sap ran well, he grafted on an almond twig and later he budded and grafted on bits of peach, cherry, walnut, prune, plum and varieties of apricot trees.

The following spring, when the parent trees blossomed, so did the changeling children of the slacker apricot. The second fall large crops of all varieties of fruits were gathered in and each fruit was of a richer flavor and larger size than its step-sisters on the mother tree.

As if bent on being an alien enemy, the root of the old apricot tree now took to sending up young offspring of its own race all about the orchard within a radius of fifteen feet. Dr. Mutchmore promptly beveled these off and grafted on new varieties of pit fruits. After three years he has a most cosmopolitan and valuable orchard on less than a sixth of an acre.

The top of the once stiffnecked old apricot today measures nearly twenty feet in diameter, and it is about ten feet tall. It is now like a world at peace in which slender peach leaves, round almond, pointed prune and broad apricot thrive side by side, each in his own place achieving its destiny without interfering with the other.

In the spring, when the different tinted blossoms burst forth, and later when the reds and yellows of ripened plums gleam beside the pink of peaches, the ochres of apricots, the purple of prunes and the browns of the nuts, not Solomon in all his glory was arrayed like this one-time useless old Moorpark.

Any one can do the like, according to Dr. Mutchmore The recipe is simple. Take the stub of one old fruit tree with a heaping bucketful of sap; add grafts and buds of kindred fruits; set to raise in the even heat of California sunshine and baste in its winter rains.

We Want New Farming Facts

ORCHARD AND FARM asks you to send in little stories of experiments you have made in farm work that proved of value to you, and also accounts of unsuccessful experiments that would be a guide for others.

We want Orchard and Farm to be a meeting place of the farmers of the Pacific Coast, where they can exchange experiences and profit by such exchange. Practical farmers everywhere are continually devising some new wrinkle as to cultivation, or irrigation, or fertilization, as well as schemes as to livestock raising. A practical farmer's ingenuity frequently results in the production of an idea of practice as valuable as that evolved by a professor of agriculture.

All of these communications will be saved. The best will be printed, and at the end of a year a committee will pass upon them. This committee will be from the California College of Agriculture, as follows:

John W. Gilmore, Division of Farm Management.
Gordon H. True, Division of Animal Husbandry.
C. L. Roadhouse, Dairy Industry Division.
J. E. Dougherty, Poultry Division.
W. L. Howard, Division of Pomology.
Frederic T. Bioletti, Division of Viticulture.
Frank Adams, Irrigation Division.
H. J. Webber, Director Citrus Experiment Station, Riverside, Cal.

The communication that is regarded by the committee as having proved of the most value will be awarded a prize of $50. The one second in value will receive a prize of $25. The third in value will receive a prize of $15. The fourth, $10, and the fifth in value, $5.

Write to Orchard and Farm as briefly and as clearly as possible, so that there can be no mistake as to your meaning about the original thing you have developed that you regard as having been of the greatest value to you and your farm.

Nitrogenous manures give luxuriance of growth. When the foliage is dark green, the growth soft and sappy, it is pretty sure evidence there is abundance of nitrogen in the soil. To check this rankness of growth, phosphates, potash and lime should be added to encourage the formation of flowers and fruits.

The silo is one improvement that the dairyman should not hesitate to add to his list of structures. Wherever the silo has been used it is now an indispensable necessity because it gives the dairyman a feed that can only be gotten by the storage of feed in this manner.

Experiment stations claim that it is best to give the work horse his largest feed at night and smaller feed morning and noon.

Control of Weeds

By H. R. Cates

A WEEDY ranch is a heartbreaking affair. Nothing is more discouraging or expensive to the rancher, as Orchard and Farm often has pointed out.

The high cost of weeds in many areas is largely the result of single crop farming. Crop rotation and diversification are the greatest foes of weeds, and usually where a single crop system of farming is practiced weeds are exceedingly troublesome.

In many instances lands have become so foul with weeds that certain crops can no longer be grown profitably upon them. This is true in many of the fields in Louisiana which have been continuously cropped to rice for a number of years, until those weeds which thrive under conditions favorable to the production of rice have become so prevalent that it is no longer profitable to grow the crop.

Foul California Wheat Fields

In California, where wheat has been growing continuously for a number of years, the land has become very foul with weeds. The prevalence of weeds is forcing the introduction of crop rotations and is decreasing the acreage of wheat in that area.

The hard spring wheat area, composed largely of North Dakota, western and southern Minnesota, and eastern South Dakota, is now going through the same evolution. In this area the grain fields, which have been continuously cropped to wheat for years, have become so badly contaminated with such weeds as wild oats, wild mustard, French weed, and sow thistle, that in many instances wheat can no longer be grown profitably. These conditions are being remedied, and the loss due to weeds is being greatly reduced by the adoption of efficient cropping systems and general farm practices, giving due consideration to those methods and practices which are most effective in controlling weeds.

Clean Seed Helps

In small grain and hay farming no feature of weed control is more important than the use of clean seed. The cost of cleaning seed is small and the results very marked, yet this fact has not been sufficiently emphasized.

Many weeds are propagated only by seeds. Weed seeds are produced in large numbers along roadsides, fence rows, and ditch banks, in vacant fields and in waste places, and the seeds are scattered by wind, water, birds and other agents. By cutting the weeds before the seeds are sufficiently mature to germinate an enormous amount of trouble and labor and loss could be avoided; but only the most progressive farmers do this.

A systematic rotation of crops is one of the most feasible and effective means of controlling weeds. Universal crop rotations will not come, however, especially in the small grain areas, until forced by economic and agronomic conditions, in which weeds will be an important factor. As the lands became foul with weeds, necessitating a rotation of crops, the single crop system of small grain farming has gradually been forced farther west.

System on Your Ranch

Stopping the Leaks

A MODESTO correspondent who is running a dairy sends to Orchard and Farm some valuable data showing how he stopped five big leaks in his ranch expenses. The first of these leaks amounted to $117.25 a month which exactly represents the difference between the cost of machine and hand milking on his farm. The hand milking, including the wages and board of two men and the time they lost from other work, beside the time lost by teams, amounted to $197.25 a month. The milking machine costs only $80 a month to run, thus making a saving of over 50 per cent.

"This," says the correspondent, was the biggest leak of all, but there were four others that mounted up pretty heavily. One of these was for plowing. Horse plowing used to cost me $2.13 an acre, but my tractor does the work for $1.15, thus giving me a saving of 98 cents an acre. I figure that the tractor is being run at too heavy expense as it stands, and I am going to cut it down next fall.

"Then there were disking and harrowing. These used to cost me 58 cents an acre, but my tractor now does the work for 27 cents, which saves me 31 cents an acre to the good.

"Until I bought my tractor silo filling used to be a big expense. Ensilage used to cost me 27 cents a ton just for the hire of the machine, while extra labor and board of men made the expense pretty big. But now, filling my two silos with my own outfit, I make a saving of 14 cents a ton for power and cut down my extra labor expense to a very small sum.

"Then there was feed grinding. This I used to hire done at the mill and it cost me from 6 to 9 cents a sack, but now, having my own grinder it costs only 2 to 3 cents."

How to Keep Records

Farm records may be roughly divided into two heads:

1. Records of happenings.
2. Records of money transactions.

Simple accounts of everyday happenings are often of great use. Every farmer makes a note when a calf is born or a sow farrows. Many do so mentally only, but it is none the less a note. If such notes are written down in a way that makes reference to them easy, they become of much use in supplying needed information when memory fails. Notes recording other everyday happenings will prove useful. Among these may be mentioned the dates when animals are bred, men hired or discharged, accidents occur, pasture season begins and ends, first and last frosts occur, incubators are set, spring work begins and fall work ends, seed time and harvest occur, etc. Such notes as those when systematically recorded are invaluably referred to are of much value. They enable one to take proper precautions as to feed and care of animals prior to the birth of young, thus saving both mother and offspring. Contracts with hired men may be greatly simplified by recording the date of hire and a wage agreement, and all amounts subsequently paid them. Accident records are of value when seeking redress for damages, pasture data when figuring on feed supply, and frost and other weather data in planning the year's work.

A record of the cash received and paid out is made by many farmers, but all the benefits to be derived from such records are seldom realized. The most important use made of them in many cases is as a means of checking up bills when sent in, to see whether all payments have been duly credited.

The cash account may be kept in any convenient form, but perhaps the simplest and most interesting way for a beginner is to use a diary. If this be done, part of the page may be used to record the daily happenings and the cash record made on another part of it, thus giving a complete record of the day, and in addition to the foregoing daily notes of personal affairs, ideas, and events may be jotted down, thus giving such records a personal touch, and making them more than of mere business significance and giving them color that will make them interesting in the years to come.

Any information that may be wanted at the end of the year may be assembled from a diary account book in a few hours.

Appraising Your Ranch

AS might be gathered from certain paragraphs in the letter of Land Bank President Joyce to Orchard and Farm last month, the appraisal of farms upon which the government contemplates loaning money is a matter of very careful consideration.

This is as it should be and yet a farmer who lets another man appraise his ranch without going into the vital factors that should rule in such a case is not very wise.

Why not appraise your own farm, following this practical course of procedure which should give you the correct figures:

First—Find the selling value under ordinary market conditions.

Second—Take the next step and make the traditional analysis of valuation of land—on the basis of selling value—buildings, and personal security.

Third—Make the fundamental analysis of the earning power of the farm.

Fourth—If there is any difference in the results between the traditional analysis and the scientific analysis of the two foregoing steps, then the causes of this difference should be observed to determine if they are economic, social, religious, educational, acsthetic, or considerations of health.

Fifth—The appraiser must reach his final conclusion of valuation. The earning power of the land is his fundamental factor and his final valuation will not vary far from it. If the factors causing a variation from the earning power are relatively permanent in their effect on the earning

(Continued on Page 11)

THE ACME OF TRACTOR EFFICIENCY

Model S-25

GMC Tractors **SAMSON SIEVE-GRIP TRACTOR** GMC Tractors

Efficient Tractors are the need of the hour. We have the Tractor that meets requirements. It develops ten horsepower on the drawbar and twenty-five horsepower on the pulley. Its strength is equal to the most trying demands of the grain farmer. Its low, compact and simple structure makes it a very desirable machine for orchard and vineyard. Its adaptability for the hundred and one odd jobs on the farm is well established. It is a demonstrated success in every field of Tractor endeavor, made possible by years of careful study and practical experience.

Embodied in its construction are patented features giving it unquestioned superiority.

Its steel Sieve-Grip Wheels give traction and support on any surface. They do not pack the ground. They stir and mulch the soil, assisting cultivation.

All working parts are free from dust and grit, assuring long life.

Its Ball and Disc Type Governor provides positive and satisfactory control.

Its Steering Device guarantees ease and reliability of action, without strain.

It is always ready for action.

For information inquire of any owner or write us for our latest booklet, "Better Farming."

Samson Sieve-Grip Tractor Company

Division of

GENERAL MOTORS CORPORATION,

STOCKTON, CALIFORNIA.

BAGS

Burlap and twine, new and second-hand. All kinds of bags for grain, peas, beans, onions, potatoes, rice, seeds, etc. Every bag is thoroughly inspected before being shipped. Write for prices, stating the number of bags you need. We ship in any quantity from a few to a carload.

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348-352 S. Alameda St., Los Angeles, Cal.
Mention Orchard and Farm when writing.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand.

Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyard; the best for bleaching purposes. LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.,
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Be Patriotic

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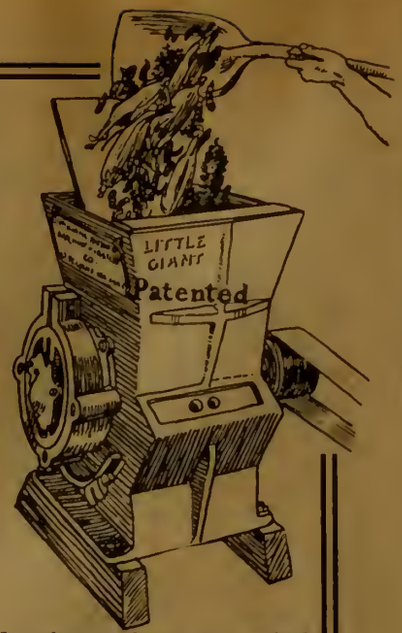
Send For This Bulletin



It shows how to grind everything without knives or buhrs. Mammoth capacity, minimum power, S. K. F. ball bearings, quick replaceable screens, fewest parts, durable non-skid pulley. No vibration, low repair cost. Indorsed by the Food Administration.

Collins & Webb, Inc.

MACHINERY DEALERS

412 East Third St., Los Angeles

LIME Low price. Ten cars air-slacked, fertilizer lime. Perfectly dry and guaranteed. Liming land doubles crops, makes sour soil sweet, heavy soil light, sandy soil retain moisture, and promotes the growth of needed bacteria. Our fertilizer lime is shipped direct from our own kilns. Write for lowest price and lowest freight rate to your station. SUMMIT LIME CO., 708-709 Marsh-Strong Bldg., Los Angeles.

Killefer Bean Cutter

Catalogue No. 281

Killefer Quality

KILLEFER EFFICIENCY

There will be a big demand for Bean Cutters this year, and when the time comes they will be needed quickly. Do not delay putting in your order now for what you need in this line, also for extra blades.

We build two weights of sled cutter, the one shown above being our regular wood frame cutter. For heavy ground, where a stronger cutter is required, we make a steel arch frame at an additional cost of five dollars. Give your order to your dealer and insist upon having the Killefer Bean Cutter. Send for catalogue.

The Killefer Manufacturing Co.

2209-21 Santa Fe Ave. Los Angeles, Cal.

Los Angeles Tractor Show

Great Demonstration in September

GET ready, everybody, for the big tractor demonstration near Los Angeles next month! This great show is going to surpass anything in that line ever pulled off anywhere, even the big demonstration of last year in the City of the Angels.

Already extraordinary interest is being shown in the affair, both on the part of exhibitors and ranchers. The grand show is going to bring home to the minds of every spectator the prime importance of the tractor and the role it is playing in the great war.

The demonstration will be held near the city on September 17th to 21st, inclusive.

Over forty different types of tractors will be represented as well as all kinds of tractor plows and other implements suitable for tractor work on the farm; also automobile, truck, accessory and fuel distributers

Special events will take place every day during the demonstration and farmers and prospective purchasers of farming implements will be able to see the tractor operate under every conceivable condition. There will be accommodations to park thousands of automobiles and no admission is to be charged. It is estimated that over 100,000 farmers and ranchers will attend, many of the spectators coming from distant States

The Traction Engine and Implement Dealers' Association of Southern California will be in charge of the demonstration and plans already formulated call for one of the most elaborate exhibitions ever given. The location will be announced in our next issue. H. L. Marsh, one of the officials of the demonstration, states that the location will be convenient to Los Angeles and easily accessible by both rail and motor and that free accommodations will be made for everybody.

To Control Citrus Thrips

PLAIN lime-sulphur solution applied in three successive sprays will enable a satisfactory control of the citrus thrips, an insect which is rapidly becoming a menace to the production of oranges, grapefruit, and lemons in California and Arizona. This treatment has been developed in investigations by entomologists of the United States Department of Agriculture, and is believed to be the most reliable of four satisfactory mixtures tried—lime sulphur, sulphur soda, lime sulphur and tobacco extract, and tobacco extract. In a publication of the Department of Agriculture, Bulletin 616, "The Citrus Thrips," J. R. Horton of the Bureau of Entomology describes the citrus thrips in this country, its life history and control, and announces the results of extensive experiments in spraying It is explained that the lime-sulphur solution recommended may be either 1 to 56 of the 36 degrees Baume density, or 1 to 50 of the 33 degrees Baume density.

Maps presented in the publication mentioned show the distribution of the citrus thrips in California and Arizona, to which States the insect is confined, it is believed. The insect is known to occur in eight counties in California—Sacramento, Fresno, Tulare, Kern, Los Angeles, San Bernardino, Riverside and Orange The infestation is most serious in Tulare, Fresno, Riverside and San Bernardino. In Kern county the insect is increasing rapidly.

The losses suffered from grade reduction due to thrips in the Lindsay district of the San Joaquin valley in a season of comparatively light infestation, are given in the bulletin as follows: Forty-three per cent, or 255,742 boxes, reduced to second grade at a loss of 37 per cent a box, making $96,744.54; 23 per cent reduced to third grade at a loss of 65 per cent a box, making an additional $88,914.18, or a total loss of $183,539.34

San Francisco Stock Show

ONE of the interesting features of the California International Livestock show at San Francisco in November will be a slaughter test, this being an entirely new department in connection with livestock exhibitions on the Pacific Coast Animals entered in the carcass contest will first be judged on hoof and afterward slaughtered, then judged in carcass and on the block This is essentially an educational feature and demonstrates the quality of edible meat produced under certain conditions and feeds, the character and type of animals furnishing the ripest and best carcass in the shortest time and feed consumed, and puts the judge to the supreme test of judging on hoof knowing the slaughter records, with per cent of dressed carcass to live weight and final carcass award

Inquiries and letters of endorsement are being daily received at the office of the manager. Many stockmen indicate their intention of exhibiting. A letter from one California breeder says: "You have started a good work, something which has long been needed in this territory, and it is bound to accomplish much good The demand for my stock has been so great, and have sold it down so low, that if I exhibit I will be compelled to go out and buy more"

Now is the time for action, and the man who is breeding and maintaining herds of pure-bred stock and expects to remain in the business and prosper must nail his banner to the mast and be determined to keep it there, no matter what the seeming difficulties

F C Giltner, the well known Hereford breeder of Kentucky, writes "I have never yet found a place where I could so nearly realize $20 a bushel for corn as I can on the back of a good bull" The man who has the stock today, well cared for and presents them in the best form to interesting purchasers is the man who will reap the reward

Handling Hogs in Transit

EVERY hog that is killed in transit due to overcrowding or mishandling means a loss, at present prices, of probably more than $30 to the shipper as well as a waste of meat needed by the nation. Mortality in transit or after arrival at the central market can be lessened greatly in hot weather by the practice of the following simple precautions on the part of shippers and dealers:

When hogs are very hot, during or after a drive, never pour cold water over their backs.

Before loading, clean out each car and bed it with sand which, during dry, hot weather should be wetted down thoroughly. Hogs in transit during the night only are not so likely to be lost from overheating as are the animals shipped in the daytime. With day shipments in hot weather it is highly advisable to suspend burlap sacks of ice from the ceiling in various parts of the car in order to reduce the temperature and, incidentally, to sprinkle the animals with cool water. The ice sometimes is placed in sacks on the floor, but the animals are likely to pile and crowd around the cakes so that only those close to the ice are benefited. The ice should be sufficient to last to the destination.

Do not overload. Crowding hogs in a car during warm weather is a prolific source of mortality.

The feeding of corn, because of its heating effect, before and during shipment in hot weather, should be reduced to a minimum. Oats are preferable where a grain feed is necessary. The maximum maintenance requirement of hogs in transit for 24 hours is 1 pound of grain a hundredweight or approximately 3 bushels of corn to a car. In the past thousands of bushels of corn have been wasted in livestock cars.

Shade and Clean Water for Hogs

SHADE and clean water during the summer months are essentials to successful pork production. All kinds of hogs must have shade. Too much direct sunlight and heat is a frequent cause of hogs failing to thrive and is often the cause of hogs dying. During July and August small pigs often blister on the backs and about the ears, which causes, in some cases, severe infections and bad sores.

Expensive shelter is not necessary. Shade trees provide ample protection. Where no trees exist temporary shade may be provided by the covering of a frame with canvas, under which the hogs may go for protection. Some producers build individual hog houses with sides that may be lifted to provide an increased amount of shade during the summer months.

Clean fresh water for drinking and wallow is equally as important as, or more important than, shade. The old wallow hole covered with scum, which was once also the drinking supply, is no longer in favor with the successful hog feeder. Hogs must have water to drink, and if they cannot get fresh clean water in the trough or fountain, they will drink where they can find it, regardless of condition. This fact has caused some to believe that hogs prefer nothing better, but they do and will ... the fact when they are ... fresh water from the well. The ... wallow hole is also im... Hogs may use the muddy ... if no other is available; but, ... if clean water is provided in a ... wallow they will prefer it ...

System on Your Ranch

(Continued from Page 9)

power, then they should be given due consideration in the final valuation. Any variation from the earning power made in the final valuation should be made with great caution, always keeping in mind that the earning power factor is fundamental and all the other factors are secondary.

Sixth—The appraiser makes his recommendation. It should be the appraiser's guiding rule to make the basis of his recommendation the lower of the two principal factors, earning power or selling value. Only in exceptional cases should there be any variation from this rule. In some instances these exceptional cases may include entire associations or they may include only a single farm. Wherever such variation is unmistakably warranted, it should be made and a full statement of the appraiser filed in the permanent records for that locality for future reference and guidance.

High Cost of Carelessness

TALK about the high cost of living! The high cost of carelessness beats it a mile and then some. It is true, as William Brown, a Successful Farming writer, says, "Carelessness has about the longest arm and surest grasp of any agricultural sin which we commit."

Brown is right. Part of the system of every well conducted ranch is the adoption of means to prevent somebody doing something that is going to cost time, labor and therefore money. Machinery left to rust, tools scattered about the ranch or neighborhood, a leaky pump going unattended to all these and many other things eat up the profits of farming.

"Carelessness," says Brown, "has crept into the fibre of our community life. It isn't recognized as such nearly as often as it is called bad luck, and sometimes its working is accepted without any comment. But it is there like the aphis at the roots of corn, which so often gets in its work so that the corn is blown down and the wind gets the blame, without the aphis being suspected at all.

"There was Jim Peterson, for instance—I'm not going to give real names, because this magazine is well read in our neighborhood and there is no use making any man feel like an example among his friends. Jim never realized that it was carelessness that took his farm away from him. He was as honest and hard working and upstanding a fellow as ever lived. But Jim was always after the big things like a big day's plowing or seeding or a harvest that busheled up a little bigger than his neighbors. He never figured out the truth of that old saying about little leaks sinking big ships.

"So he neglected his insurance polity, and when lightning struck and burned the barn one fall it was a total loss, grain, hay and some livestock with it. He got to losing horses and I'm not alone in believing that his dark, damp, almost sun and airproof stable was the real cause. However that may be, the typhoid fever that took his oldest boy and cost him a back-breaking doctor bill was proved to trace down to a well that was open to drainage from stable and outhouse.

"After losing his boy, Jim had to hire help and that added to expenses, besides not always being obtainable or satisfactory. He got careless of fertility and grained his farm heavily to try to recover his losses. Three bad years came, crops failed, and Jim was sold out."

Perches should be placed on a level (about 18 inches from the floor) to avoid the birds all crowding on the higher roosts.

Send our soldier boys the fuel, and they will supply the steam.

See Phonograph Offer Page 19.—Adv.

Nothing has given us more pleasure than the little ad in the Orchard & Farm.

We received so many duplicate orders and compliments from people we never knew before.

We again offer our best coffee, ground or whole, five and one-half pounds, for $1. Our best green coffee, six pounds for $1. Our best teas, all kinds, three pounds for $1.

Ambro, substitute for chicory or coffee, five pounds 65c. Non-stimulant health drink.

Special ten thousand cans sardines, fifteen to sixteen ounce, in tomato, delicious—a meal in each can. Price 16c each.

Seven pounds of pink Mexican and kidney beans, mixed, 50c.

We have bought thousands of hand brushes. Regular 15c and 20c. Will send them with the order at 5c each.

We will pay all post charges. Taxes, if any, we expect you to pay. Better buy before they come on under our money back guarantee.

Del Morris Sale Co.

2320 Mission St., San Francisco, Cal.

YMCA Schools

Complete day and evening courses in bookkeeping, accountancy, stenography, typewriting, English, mathematics, radio, preparatory, electrical, mining, surveying, mechanical, automobile, machine shop, vulcanizing, welding and brazing. Also ideal grade and high school. Large faculty of specialists, swimming, gymnasium, etc. Send for free catalogs and name course in which you are interested. Address J. A. GILLESPIE, Director, 715 S. Hope St., Los Angeles, Cal.

BEE HIVES Complete one-story, 8 frames, $1.30. Best material, either white pine or redwood; bone-dry; cut by trained hive mechanics.

BEESWAX For nurseryman—Buy direct for your budding and grafting, best yellow, or off color, at cheaper prices.

Geo. L. Emerson Co.
428-430 South Hewitt St.
Los Angeles, Cal.

"It's Just Simply Adorable!"

"I never realized how greatly I needed my dressing table until now that I have it and find what a convenience it is.

"No, indeed, I didn't have to make a trip to Los Angeles! I sent for Barker Bros.' big, new catalog and made my selection from real photograph reproductions."

If you'll send us your name and address you, too, may have a copy of this furniture and home-furnishing book. Address Mail Order Division No. 30.

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ESTABLISHED 1880
The House of Complete and Competent Home Furnishing Service,
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MR. RANCHER

Do you need hay and pasture for your stock? Do you know that if you irrigate your land at once and drill in twelve pounds of Sudan Grass per acre you can, in eight weeks, cut four tons per acre of No. 1 hay?

Irrigate and again in four weeks cut another two or three tons per acre, and after that pasture until destroyed by frost.

This is a fact! Try it now! Get your seed from

AGGELER & MUSSER SEED CO.
6th and Alameda Sts., Los Angeles, Cal.
Branch Stores 115 North Main Street 767 South Central Avenue

Rebuilt Tractors

Rebuilt Farm Tractors For Sale

1—90 H. P. C. L. Best Tracklayer.
1—75 H. P. Roundwheel C. L. Best Tractor with extension wheels.
1—30 H. P. C. L. Best Tracklayer Tractor.

These tractors have been completely rebuilt by expert tractor mechanics. Every worn part has been replaced with a new part. These tractors are practically as good as new.

Write or wire for particulars.

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Then feed them profit producing food. Because of the easily digestible protein in COPRO its nourishing value is exceptionally high and the percentage of waste in assimilation is exceedingly low.

Copro

is a nourishing, economical, profit producing form of food for cattle and poultry.

Mix it with your rations and watch the results. FREE SAMPLE and a copy of our booklet containing valuable information on the subject of "SUCCFSSFUL FEEDING" gladly sent on request. Write today. If your DEALER can't quote prices write us direct.

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Manufacturers
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Today's Dream—Tomorrow's Reality

Electricity offers to the farmer of the present the means of eliminating the monotonous grind from the day's routine.

G-E Motors Save Labor

You can free yourself from the physical exhaustion resulting from farm drudgery if you use G-E motor-driven machinery to milk your cows, separate cream, churn butter, cut feed and ensilage, saw wood, thresh grain, pump water and perform the many other tasks which make up the necessary activities of the working day. The cost for power is less than the wages of one farm hand. Ask your lighting company or our nearest office for full particulars.

General Electric Company

Los Angeles Office: Corporation Bldg.

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677J

The Valve-in-head-type engine illustrated here, like all *internal combustion engines*, requires an oil that holds its lubricating qualities at cylinder heat, burns clean in the combustion chambers and goes out with exhaust. Zerolene fills these requirements perfectly, *because it is correctly refined from selected California asphalt-base crude.*

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It Keeps the Engine Young!

Zerolene keeps the engine young—full-powered, smooth-running, and economical in fuel and oil consumption—because it is correctly refined from selected California asphalt-base crude. Gives better lubrication with less carbon. Made in several consistencies. Get our Correct Lubrication Chart covering your car.

At dealers everywhere and Standard Oil Service Stations.

STANDARD OIL COMPANY
(California)

Sunflowers

A Helpful Sermon

A certain bishop of the Methodist Church South was a very eloquent preacher. He told the following story on himself as an illustration of the fact that his sermons did not always have the effect he desired.

He had had what Methodist preachers were wont to call "a good time" preaching in one of the smaller southern cities, and as soon as the service was over, many people went to him to express their appreciation of his sermon. One woman in particular was most outspoken in its praise.

"Why, bishop," she said, "you can never know what your sermon meant to me. It was just like water to a drowning man!"

BERTIE (*to draft officer*): I say now, if you ask me any more of those silly questions I won't join your bally army at all; really I won't, so there!

Economical

The canny Scotchman is, of course, a synonym for thrift. Ian MacDougal, about to leave on a journey, proved no exception to the rule.

In his parting injunctions to his wife he said:

"Noo, Jant, dinna forget to mak wee Sandy tak' off his glasses when he's no' lookin' through them"

Reason Enough

On the occasion of the funeral ceremonies of a very wealthy man in San Francisco, a policeman at the entrance observed a man emerging from the church weeping violently, but it was evident from his seedy appearance that he was not a member of the family of the deceased.

"Say," demanded the policeman suspiciously, "what are you crying for like that? You ain't no relative of the dead man!"

"No," sobbed the mourner, "that's just why I am crying."

The Other Cheek

"I hear that autoist used rough language to you, after running you down and breaking both your legs."

"Well, you see," explained the pacifist-pedestrian, "he was afraid it would make him late at the ball game."

Nil Nisi Bonum

Some of the rookies were holding the customary inquest over mess.

"This ham doesn't taste right" said one.

"Well," said another, "the cook said that this ham was cured last week."

"Last week, eh?" said the objector "well take it from me, it had a relapse!"

Baffling

"Didn't you have a brother in the course last year?"

"No, sir, it was I. I'm taking it over again."

"Extraordinary resemblance though! Extraordinary!"

Mistaken Identity

"Cleopatra! Cleopatra!" called Mary, who liked big names for her pets.

"Why, I thought your cat's name was Napoleon," protested the visitor.

"He was Napoleon till he had kittens," affirmed Mary, stoutly.

Dinner hour in the home of Herr Doktor Essenchnitzel, Professor of Ethics at Berlin University.

Cut Your Feed Costs 1/3rd!

Write For Amazing NEW SMALLEY Book FREE!

Thousands are filling their Silos quicker! easier! cheaper!—with richer, better cut ensilage than ever! With the famous patented Recutting Attachment, they're making dandy feeds, turning roughage into tempting meal, fattening hogs, cattle, sheep, poultry, at a 15% to 80% cost-reduction! Think of it!

Makes wonderful combination meal-feeds from clover, corn stalks, snapped corn, bean straw, pea vines, oats, rye—Cracks peas, corn, beans! — Handles leaves, stem and all! Saves waste — doesn't injure color of hay!

Meal capacities range from 1080 to 2340 lbs. per hour (600 to 900 lbs. meal per hour with *Junior Mill* driven by 6 to 8 h. p. engine).

Smalley Silo Filler Seven Sizes

Makes silo filling as easy as A B C! Grip-hook Force-feed TABLE and paddle roller automatically feeds the powerful, swiftly revolving, lawn-mower-like knives!—turns out fine cut ensilage of unbeatable richness—increases silo tonnage—pays for itself quickly. Patented low-speed one-pulley CHAIN DRIVE Blower. Saves 1-5 to 1-4 power costs. Ends belt slippage, belt troubles—is faster, cleaner—saves time, money, trouble.

Blower and cutter work independently. Speed up fan — or slow it down! — Speed of knife shaft remains the same. Four sizes of Alfalfa cutters with top apron. Book explains all. It's FREE—with samples of meal. Write Pacific Implement Co., Gen. Agents San Francisco, Cal.

Smalley Manufacturing Co.
Dept. 62. Manitowoc, Wis

FARM MACHINERY WANTED

SCOTTY PAYS CASH

for any kind of farm machinery you don't need and want to sell. No matter what it is, write us, giving us a good description of what you have. We want hay balers, cultivators, plows, harrows, drills, harvesting machinery, threshing machines, feed cutters and grinders, fanning mills, windmills, gasoline engines, tractors, blacksmith tools, belting. In fact, anything and everything you have to sell.

SCOTTY'S PLACE
135 S. Los Angeles St., Los Angeles, Cal.

We carry the largest stock of new and used farm machinery of any firm in the State. Visit us or write us and save money.

BAGS For All Purposes

New and second-hand. Every bag thoroughly inspected before shipping. Bags for grain, potatoes, seeds, rice, onions, beans, etc. Whether buying or selling, communicate with us.

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Board, room and tuition may be earned. Splendid openings in the railroad business for ambitious women under 45. Send for free catalog.

MACKAY BUSINESS COLLEGE
9th and Main Sts., Los Angeles, Calif.

Rheumatism

A Home Cure Given by One Who Had It

In the spring of 1893 I was attacked by Muscular and Inflammatory Rheumatism. I suffered as only those who have it know, for over three [illegible] I tried remedy after remedy, and doctor [illegible] but such relief as I received was [illegible] temporary. Finally, I found a remedy that [illegible] pletely, and it has never returned. [illegible] it to a number who were terribly [illegible] even bedridden with Rheumatism, [illegible] a cure in every case.

[illegible] sufferer from any form of rheu[illegible] to try this marvelous healing power. [illegible] simply mail your name and [illegible] I will send it free to try. After [illegible] it and it has proven itself to be [illegible] for means of curing your Rheu[illegible] the price of it, one dollar. [illegible] I do not want your money un[illegible] satisfied to send it. Isn't [illegible] any longer when positive [illegible] you free? Don't delay.

[illegible] No. 6[illegible] Gurney Bldg., [illegible] N. Y.

[illegible] Above statement [illegible]

Life of a Tractor

HOW long will my tractor last and do fairly good work? This is a question that every tractor owner asks himself and it is one that nearly every prospective buyer puts to the agent

Some agents are inclined to give a little too optimistic an estimate. Others are too conservative. Few speak from long practical experience.

Here is what Arnold P. Yerkes, the well-known government farm expert says after making a thorough investigation of the subject among the tractor owners of Illinois:

"Nearly all tractors are used under conditions which are extremely severe for any kind of machine. They travel over rough and uneven ground, and are subjected to severe shocks both from obstructions in the path and from the load being pulled. A still more injurious condition is their exposure to an almost constant shower of dust and dirt, which, if the soil contains much gritty substance, attacks all gears and bearing surfaces, not only those on the exterior of the machine but also those inside the engine itself, unless an efficient filter is provided for the air intake to the carburetor. This excessive wear due to dust was a very serious matter with the earlier models of tractors, but many manufacturers have made great progress during the last year or two in protecting their machines in this respect.

Estimates of Tractor Users

It is obviously impossible to determine definitely the probable life of the latest model tractors, since none of them are worn out, but the nearest approximation to the actual figure would unquestionably be the average of the estimates given by a large number of men who had used them for a season or two, and who should be in a position to give a fairly reliable opinion as to the additional service that reasonably may be expected from their machines. Tractor owners were asked for an opinion as to the number of years their own particular machines would give satisfactory service, and also to give an estimate of the average life of farm tractors. The replies to these questions showed a tendency on the part of men who reported the tractor as having been profitable to estimate that their own machines would last somewhat longer than the average machine.

Eight Years the Limit

On the other hand, men reporting them unprofitable usually gave the probable life of their machines as less than their estimate of the average life of tractors in general. The answers to both questions, however, averaged very nearly the same, being eight and seven and one-half years, respectively.

Of course, these averages can not be regarded as being absolutely accurate, but certainly they should be as nearly accurate as any figures which could be obtained in any other manner at the present time. As a matter of fact there would probably be a tendency on the part of tractor owners to overestimate somewhat. It is not believed, however, that a prospective purchaser of a tractor should expect for his outfit a longer life than seven and one-half seasons, and he would be on the safe side if he counted on a somewhat shorter period of service when calculating the probable value of a tractor for his work.

The Engine Selected by over 150,000 Farmers

RECORDS made by over 150,000 practical farmers buying over $10,000,000 worth of Fairbanks-Morse "Z" Farm Engines have never been equaled in Engine history.

Demand, as they did:

1. Fairbanks-Morse Quality.
2. Economy in first and fuel cost, and low upkeep.
3. Simplicity and Staunch Durability.
4. Light-weight, Substantial, Fool-proof.
5. Gun-barrel Cylinder Bore.
6. Leak-proof Compression.
7. Complete with Built-in Magneto.
8. More than Rated Power.

You Also Get Service from your Local Dealer

Your local dealer has just the type "Z" for your needs in stock—waiting for you. Buy from him. He is prepared to give prompt delivery and personal service right where you live.

The 3 and 6 H. P. sizes are built to use kerosene, distillate, stove oil, tops or gasoline. The 1½ H.P. size uses gasoline only.

FAIRBANKS, MORSE & CO.
Chicago — *Manufacturers*

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Face brick, mantel and fire tile half price.

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Up-Cyl Oil—The Super-Lubricant. Less Fuel—More Power—Fewer Motor Expenses

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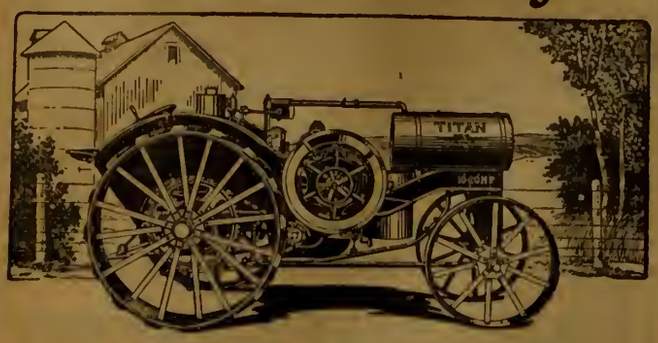
The great importance of the tractor today has caused tremendous demand for tractor operators and repair men. Ranchers everywhere want competent tractioneers. BIG PAY. GREAT OPPORTUNITY NOW OFFERED YOUNG MEN in this new trade. Western America's Oldest, Largest and Most Reliable Trade School has inaugurated a special course in Tractioneering and can PERFECT YOU as an expert. Write for 64-page catalog.

NATIONAL AUTOMOTIVE SCHOOL,
Figueroa at Eighth Street, Los Angeles, Cal.

HOLT AND INTERNATIONAL HARVESTER TRACTORS USED FOR DEMONSTRATION

Tractor Safety



FOR twelve years and more, shrewd and careful American farmers have kept us busy filling their orders for **International, Mogul,** and **Titan Kerosene Tractors.** In those twelve years our tractors have had to meet every possible combination of field and climate conditions. The types and sizes we sell today are the ones that have successfully met every test. Any one of them is a safe tractor to buy.

One great advantage to farmers who buy our tractors is the fact that we can also supply all the implements and machines that go with the tractor. We know farm needs. Buying from us, you get a complete, well balanced outfit for field or belt work.

Another advantage is our extensive dealer and branch house organization. A telephone call to a nearby dealer brings you promptly a repair, replacement, or adjustment for any machine we sell.

Look at it any way you will, you cannot make a safer tractor investment than to buy an **International, Mogul** or **Titan** kerosene tractor. See our dealer in your town, or write us for full information about a safe tractor for your farm.

International Harvester Company of America
(Incorporated)

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We have 350 feet 7-inch 20-guage pipe, practically new; 150 feet 6-inch 22 guage. These pipes are recognized for their durability. They stand up under hard usages. Write at once, AS HERE IS AN OPPORTUNITY TO SAVE MONEY.

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Irrigation Meters

Are measuring water for over 2000 water users. Why not use up-to-date methods in distributing water? Now is the most important time to produce maximum crops on the minimum amount of water. Eliminate waste.

Send for descriptive booklet, "The Water Watch."

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	Re-cap.	Rib Non-skid.
30x3	$4.50	$ 8.00
30x3½	5.00	9.00
32x3½	6.50	11.50
33x4	7.00	13.75

Send for List on Other Sizes

R. B. Tire Repair Shop
1049-51 So. Main St., Los Angeles

Tractor Problems

Is your tractor giving you any trouble? If so, write to Tractor Editor, Orchard and Farm, Examiner Building, Los Angeles, and a reply will be mailed to you from our expert. If you have no objection both questions and answers will be printed in this department.—The Editor.

A Voice From Oregon

LOOK here, Mr. Editor! You say that tractors are easier to handle than horses. Did you ever ride all day on a bumpy, jerky old machine that threw you all over the field and nearly snapped your head off your neck? I agree with your correspondent, D. B. McK., that horses are much easier to handle than any tractor on the market.—B. M., Grant's Pass, Ore.

You would hardly say this, B. M., if you had any degree of experience with a tractor beyond an occasional turn at the wheel. A tractor driver has a comfortable seat and an easy time of it compared with most team plowers or cultivators. Given a commonly workable soil, without too many stones or stumps in it and a machine that is rigged with a good steering gear, and you will find yourself in better trim at the end of a day's tractor work than with the best team of horses or mules that ever pulled a plow. To be sure during the first few months there is considerable nervous strain, just as in learning to run an automobile, but when you have gotten the hang of it and settled down to the work like an old-timer you will not be telling us that you prefer horses, particularly when you can go out and do as much plowing before breakfast with your tractor as you can do in all day with your team.

Take it easy, B. M., and run with the machine—don't fight against it.

Kerosene and Water

I AM very much interested in your tractor problems. That department is the first thing I turn to when I get my Orchard and Farm. One thing I never have seen explained and that is why water is used with the fuel in kerosene tractors. Please inform me through your columns.—J. K. B., Santa Clara, Cal.

Water is used with the fuel in kerosene tractors to aid combustion. At first blush this seems inconsistent in a chemical sense, but the injection of water with heavy fuels in engines with compression of 75 to 85 pounds helps to render the mixture homogeneous so that it burns uniformly when ignited. It has also been found that without the use of water operators had to return part of the exhaust gases to deaden the mixture, or decrease the compression, or run the engine too cold, or retard the spark, in order to keep the engine running. All these difficulties have been overcome through the injection of a little water. Compression, temperature and spark advance can be maintained at the point which will insure the utmost economy in fuel consumption and the delivery of the greatest possible amount of power.

Water also helps to prevent preignition and it tends to keep the cylinders clean.

About Practical Hitches

WHY don't you print something about hitches? It would be interesting to a lot of readers.—S. T., Ballow, Wash.

Because we have printed such articles. There was a particularly good one in the issue of May, 1916. Look over your back numbers and read it.

Let Clutch in Gently

MY engine seems to kill easily. This happens when I apply the power to the drive shaft. I think the compression is all right. What would be another cause of trouble?—H. D. S., San Luis Obispo, Cal.

Trouble of the kind you mention is often caused by letting in the clutch too quickly. In starting a tractor you should put the clutch in slowly so as to cause only a minium amount of friction at first—just enough to make your machine move. When the tractor is under way pull the clutch lever back so that the bands grip the clutch drum without slipping. If you do this you will not exert an undue amount of strain upon your engine.

When at starting you throw the clutch in very suddenly and with full operating force the entire power of your engine is thrown on immediately and one of two things is bound to happen—either you will stall your motor or you will put such a terrific strain upon the mechanism as to do it some permanent injury. Suppose you had a team of horses hitched to a stump you were going to pull. Would you start them so quickly as to snap the whiffle-trees or tugs?. No, you would let them buckle down to the strain gradually, and that's what you should do when starting your tractor. By proper handling of the clutch undue strain will be avoided.

Best Driving Speed

WHY cannot a tractor be built that will run from five to ten miles an hour instead of two or three?—O. H., Tres Pinos, Cal.

Such a machine can and in fact has been built, but it will probably do its best work on a very light pull and might not be practicable for all kinds of service. Fast plowing with a tractor would soon wear out the plow under ordinary conditions and it would be very hard on all the bearings. For cultivating corn and for orchard work higher speeds than two to three miles an hour are practicable with some light machines. Tractor manufacturers, however, have about concluded that for plowing it is not advisable to try to turn out a machine that will run more than three miles an hour when under full labor. In fact two to two and a half miles an hour—just common horse speed—is, they say, the best speed for field work of a heavy nature. Shallow cultivation is another matter. A machine has recently been invented in Oakland that will run ten miles an hour on light work.

Thinks We Are Mistaken

I AM afraid you are mistaken about the long life of a tractor. Like your Orland correspondent, J. P. B., I have a hunch that mine won't last three years. What does anybody know about it anyway?—T. H. J., Turlock, Cal.

We didn't know we had made any prediction as to the life of a tractor. The United States Department of Agriculture, in a recent bulletin, says they will last seven to eight years with good usage. Yours will probably last as long as any if you take good care of it.

Over-the-Top

Arizona's Big Year

THERE are 41,000 acres of wheat in Arizona this year, compared with 33,000 acres harvested last year. It is estimated that the yield will be over a million bushels this year. It was 825,000 bushels last year.

Here are some other crop increases:

Corn—	1918.	1917.
Beans	20,000	19,000
Kafir corn	68,000	60,000
Barley	35,000	33,000
Corn	35,000	32,000
Cotton	75,000	36,000
Cantaloupes	1,550	1,200
Alfalfa	140,000	157,000

Cotton has displaced a small acreage of alfalfa and pasture in the Salt River Valley and in the Yuma Valley, due to the attractive price of cotton. However, there will be a heavy yield of alfalfa. The State as a whole should show 10 per cent increase in cultivated acreage over last year.

The Salt River Valley, in Maricopa County, under the big Roosevelt dam, is most promising this season. Phoenix is in the heart of this valley. Cantaloupe growers around Glendale figure on a record yield. Fruit is doing well.

In the Verde Valley, Yavapai County, farmers expect big grain and fruit crops, and in the dry-farm district, northwest of Prescott, the prospects are good.

Yuma County has cotton for a new crop—in the Parker district—and the condition is satisfactory.

Coconino County, in northern Arizona, is famous for potatoes, and this year there is an increased acreage, with fine prospects.

In Apache County the dry-farm crops of oats, wheat, corn and potatoes are coming along under favorable conditions.

Good crop prospects are reported in Navajo County, where the farmers depend upon pump irrigation for moisture.

Mohave County's farm sections are in the Big Sandy River Valley, whence come favorable reports.

American Efficiency Wins

ACTING on orders from the German Government, the officers and crews of the German ships interned in American waters inflicted such damage upon the machinery of the vessels as they deemed absolutely certain to keep the ships out of service for two years. By that time the Germans thought the war would be over.

But American efficiency and American invention effected the necessary repairs in from six to eight months and at a cost of $273,000; the Germans had figured the cost of repairs at $2,600,000, and the necessary time 24 months.

All of these ships, except one that has been sunk, are now bearing American commerce on the seas or transporting American soldiers to Europe.

The Navy Department figures that the use of these ships between the time the ships were actually repaired and the time the Germans estimated they could be repaired will be worth [illegible]000,000 to the Government at the current rate of tonnage.

The Vaterland, one of these interned ships and the largest ship afloat, is now in the United States service, renamed the Leviathan.

Americans are able to operate this ship at a higher rate of speed than the Germans were able to do, and do it with 200 tons of coal less a day.

The Leviathan has one American engineer in place of five German captains of the Vaterland, and one American engineer instead of a chief engineer and five assistants that Germany required.

Thousands Offer Page 19—Adv

Southern California Fair

BELIEVING that any activity which tends to increase the food supply and help in conserving available supplies are war measures of the highest order and importance the Southern California Fair, to be held at Riverside, October 8-12, must be regarded as an important activity during the war, says a communication recently received by the fair management from the office of Herbert Hoover.

The function of the fair is to promote a larger production, improve the quality of all products and encourage better methods of production.

At the fair this year there will be available the finest specimens of livestock, grains, fruits, vegetables and the latest improvements in agricultural machinery. The exhibits will be really a short course in agriculture.

The Riverside fair is a conference of agricultural workers and all the benefits arising from an exchange of ideas will be of great value to exhibitors and visitors. The fair has been termed a food training camp dedicated to patriotic endeavor.

Each class of the big fair is open to exhibits from all parts of Southern California and the southwest.

An Option on Idlers

HERE is one way of securing farm labor. It gets results in Chickasha, Oklahoma.

The farm demonstration agent in Grady county, of which Chickasha is the seat, arranged with the chief of police and the judge of the City Court to give him an "option" as it were, upon all the vagrants and idlers arraigned. The county agent promised to use his best efforts to secure a job for every man who expressed a willingness to go to work on a farm. Transient vagrants and local idlers, alike, were unhesitant in deciding. Given a choice of jail or the county road or of hard farm work at fair wages, they became enthusiastic "back-to-the-farm" advocates.

The county agent has an arrangement whereby the city and county authorities feed these men until they are placed on farms. And that, usually is very quickly. The agent is in touch with farm labor needs all over the country and has been able to place all promising material without delay. In one day during the last harvest season he furnished farmers with eighty-nine men, and upon several occasions he has furnished sixty to sixty-five farm workers on one day. These men are free agents entirely. They work voluntarily for the wages agreed upon. They can leave if they desire. But there is one thing they can not do—remain in Chickasha, Oklahoma, and not work.

Increased Building Cost

A FIRM of lumbermen have shown the present cost of a $1000 building in 1918 compared with 1914, when paid for by the products of the farm. For instance it required either one of the following products:

In 1914
- 40 hogs.
- 705 bushels of wheat.
- 1250 bushels of corn.
- 2250 bushels of oats.
- 1050 bushels of rye.

In 1918
- 24 hogs.
- 351 bushels of wheat.
- 621 bushels of corn.
- 1550 bushels of oats.
- 416 bushels of rye.

This is with the understanding that either hogs, wheat, corn, oats or rye, with the amounts above set forth, would bring enough to pay for the $1000 building, as specified each year, which shows that the farmer by paying for it in either of these products would have an advantage at the present time over 1914, as it takes less hogs or bushels.

Big Game Rifles and Metallic Cartridges
for Shooting Right

STILL-HUNTING—stalking your game, like a sportsman—appeals as strongly as ever to the man who is all man. But to bring home venison it is necessary nowadays to shoot *right*, at the first opportunity—it may be the last.

When that well earned chance comes, be ready with a Remington UMC Big Game Rifle (either pump action repeater or the autoloading model), made to shoot *right*. Has the speed, the accuracy and the punch to do its work quick and clean.

Easy to shoot because fit, balance and design are *right*—no lever or bolt to blindly grab and wildly yank, your hands stay *right* for shooting—handles nicely and is comfortable to carry—simple, strong and reliable.

To complete *the perfect shooting combination*, buy Remington UMC metallic cartridges, for years the *right* choice for use in all kinds of rifles all over the world. When improvements are made in metallics, Remington UMC makes them first.

Sold by Hardware and Sporting Goods Dealers in Your Nearest Town

Clean and oil your gun with REM OIL, the combination Powder Solvent, Lubricant and Rust Preventive

THE REMINGTON ARMS UNION METALLIC CARTRIDGE CO., Inc.
Largest Manufacturers of Firearms and Ammunition in the World
WOOLWORTH BUILDING NEW YORK CITY

MARTIN!

KING OF DITCHERDOM

Built for farm use. Equally successful for drainage or irrigation ditches. Fine for terracing and levee work. Cuts the toughest alfalfa or sweet clover roots without plowing. Leaves the ditch with smooth, hard banks. Works in any soil.

IT DOES THE BUSINESS

All Steel Reversible-Adjustable

No wheels, cogs or levers. Made in 2, 4 and 6 horse sizes. Large size fine for tractor use.

10 DAYS TRIAL

The name Martin on a ditcher is an assurance of satisfactory field work. It is significant that most Martins now go where others Martins blazed the trail. Each machine sells another—and the reason is

Popularity and True Merit

The Martin always has been and always will be sold **on its merits** and under a guarantee of satisfaction. More **Martins** are now in use than all other farm ditchers combined, and the facts stated in this advertisement tell why.

Get This Free Book

A Three-Cent Stamp Finds Out

Just say "send catalog" and we will mail a list of users near you, together with full particulars and many photographic reproductions.

OWENSBORO DITCHER & GRADER CO., Inc.
1571 Wazee St., Denver, Colo.

EDITORIAL DEPARTMENT OF ORCHARD AND FARM

Bailey Millard, Editor.

The Farmer and the Profiteer

ONE large, luminous thought that is brought out by the cartoon on this page is that it would be a very salutary and very desirable thing if we could put the profiteer in the trench alongside of the American soldier who is expressing his doubts as to whether the "guys back home" are extending to him anything better than their best wishes.

Yes, we would like to put every profiteer in this country over there for a few days and let him know what shell fire and machine gun volleys are like when he has to stand up and take the brunt of them.

Perhaps, after returning home at the end of his period of fire baptism, he would more fully appreciate the words of Dr. Ray Lyman Wilbur, president of Stanford University, in a recent speech in Washington: "The man who comes out of this war with a dollar more than he had when it began has taken it from the blood of the men who died for him. May God forgive him! The American people never can."

To some people this may sound an exaggerated utterance.

Not so!

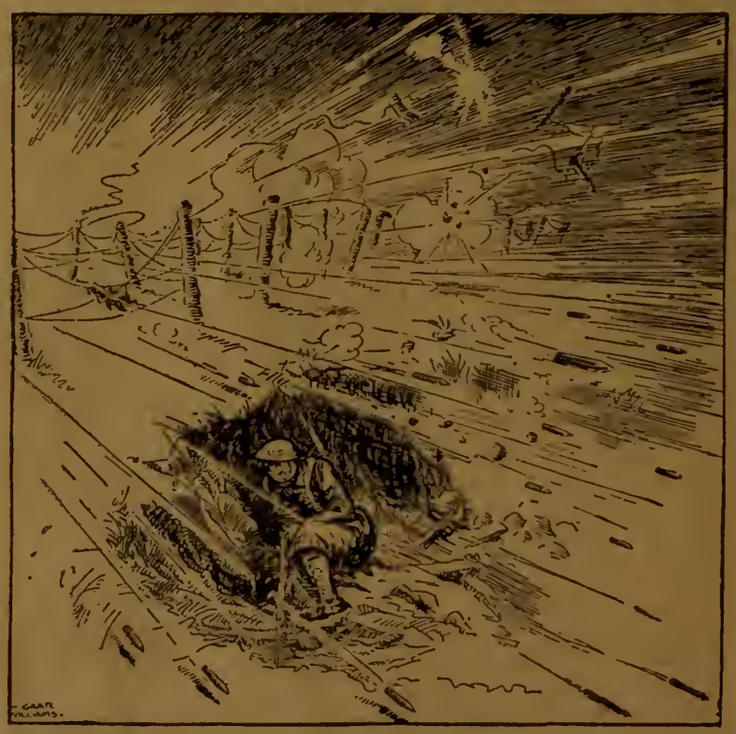
Stop a minute and think.

How can we at home, who are giving nothing but money and barely enough of that, match our sacrifices with those of the noble men who have gone to the front to give up their lives if necessary that we may enjoy the freedom which they may never see?

Is there any comparison between our temporary and really trivial hardships and their great and terrible ones?

When we think of profiteers—men who are growing rich out of the war—we never think of the farmer as being included in that class.

We think of the munition makers, the shipbuilders, and all the others who are holding big government contracts out of which they are reaping millions. True, these men are being taxed pretty severely, but who doubts that they are getting their three square meals a day, that they are smoking their costly Havanas and that they are touring about the country in their expensive cars? If they want a fine, new suit of clothes they go to the tailor and order it, or, what is more likely, order the tailor to come to them. When they want to give a big house party they give it and when their wives want expensive new hats and gowns they think nothing of buying them.



"WISH I HAD A PROFITEER WITH ME FOR AWHILE!"

When the war is over the profiteers will be richer than ever.

Not so the farmer.

He is not going to get rich out of the war.

True, he will receive a little more for his wheat, his barley or his apples, but not enough to repay him for the tremendous burden of extra expense which the war is putting upon him.

Heavy burdens of tax and increased cost of raw materials are put upon the profiteer also, but is there anybody innocent enough to believe that whatever difference there is between his gains and those of other people is not in his favor?

The relation of the farmer to the profiteer is not a pleasant one. The farmer knows that while the war has increased the cost of coal and of steel and of wood it has not increased it so much that the profiteer is justified in charging him twice the price formerly asked for a piece of machinery or a load of lumber.

There are honest manufacturers, to be sure—there are manufacturers who are trying in every way possible to help Uncle Sam win the war; but also there are 50 per cent profiteers, and these are the men at whom Dr. Wilbur was striking when he uttered his bold words.

Orchard and Farm has been trying to protect the farmer from the profiteer. It is reporting to the State Food Administrators all cases where excessive charges have been made to him for supplies of any kind.

We warn all those who are contemplating heavy advances in the prices of seeds, feed and supplies that we are watching the interests of the Pacific Coast husbandmen with a jealous eye.

The farmer—the food provider—must be protected from these sharks, so that the man over there in the trench may have no misgiving that our people are doing all they can for him in recognition of his splendid sacrifice.

Harsh Voices Behind the Times

DID you ever stop to consider that among the most noteworthy signs of progress is gentle speech?

The cave men and women snapped and snarled at each other—the women in high, raucous tones, the men in gruff growling ones. Even when they made love to each other, their voices were what our civilized folks would deem unpleasant.

Why do we think this? Because the lower down in the scale of humanity one goes, as a rule, the harsher the tones employed. Monkeys, the nearest approach to man and from whom Darwin says we are descended, have shrill screeching voices.

Our best civilization has built up a soft, pleasant voice, and unless there is an actual vocal impediment or malformed organs of speech, the person whose habitual tones are harsh and strident, though he may be ever so progressive in certain lines, is not up to the times.

It is a sad fact, but nevertheless a true one, that will be attested by almost any old Californian, that the voices of a majority of both the men and women now living in this State are harsher than those of, say, thirty years ago.

Why is this?

It is because there has been such a large influx of people from a part of the country where, as a rule, less attention is paid to vocal modulation than has been the case anywhere else in the United States. We refer to the prairie country of the middle West.

The Southerner is soft of speech, the born Californian generally has a pleasant voice, and so has the educated New Englander and New Yorker. But the average prairie dweller's flat tones are a sectional characteristic and easily recognized. To be sure, there are many exceptions, and these prove that all might have a good habit of vocal expression. In this respect the man of the prairies, so progressive in other ways, is not quite up to date, for the up-to-date person must not only be well read, but he must be well voiced.

The other day we heard a man compliment a Red Cross woman, who had just delivered a speech in a country town. Other women had spoken, but most of their voices were strident and grating.

"Madame," said the man, "let me compliment you, not only upon your excellent patriotic sentiments, but also upon your very pleasant tones."

It was such a tribute as we should like to hear oftener. Our women should be encouraged in modulating their voices. In both the Bible and in Shakespeare we are reminded that a soft, gentle voice is "an excellent thing in woman." If you should hear the average middle Western woman say, "Don't park your car over there," you would hear something distinctly unpleasant to the well tuned ear.

There are persons who have an idea that gentle speech, in which well rounded vowels are employed, is affectation. These persons are behind the times. Some of them would think it affectation to say "Iowah" instead of "Ioway," and yet they say "Mizzourah" instead of "Mizzoury," and "Cincinnatah" instead of "Cincinnaty."

We hate a mincing Miss-Nancy habit of speech in a man, and we are not very much pleased by an "Oh-deah-me!" tone in a woman. But it is easy for a man to speak in deep, firm, manly tones, and it is easy for a woman to speak in soft, womanly, agreeable ones, leaving out the grating rasp in either case.

Let the man and woman who would be up to date—up to the present standards of civilization in all respects—acquire a proper, pleasing tone, and let them see to it that their children also speak properly and pleasantly.

A bad speaking voice is largely a matter of careless habit. Let us all be a little more careful of speech, so that well modulated voices shall become a habit with us and a national characteristic, to be recognized and appreciated by those who now feel that what is called "Yankee twang" is a national disgrace.

For please bear in mind that we do not wish to imply that harsh vocal expression is confined to our prairie people. It is found here and there and almost everywhere.

Many persons who have harsh voices are not aware of it and never become aware of it.

That is the saddest part of it—for who shall tell them?

When it comes to such a task, please excuse us!

Curse of California

NOW, please don't smile when we mention the fact that some of the candidates for gubernatorial nominations in California this year are out for the land reforms so long and persistently advocated by Orchard and Farm.

To the cynical there may appear to be something funny in a politician proposing any sort of reform, and we admit that there may be ground for skepticism in this case as in others, for pre-election promises are one thing and post-election performances are another.

But let us take the candidates at their word. Francis J. Heney, who is making the run for the Democratic nomination, is a logical supporter of the land reforms. He was the prosecutor who handled the land graft cases in 1904 and he landed some of the grafters behind the bars for long terms. Mr. Heney professes himself to be on the side of the small settler. He wants to make it easier for him to establish himself upon California's bare acres. He wants to do things to the present baffling and bedeviling system, or lack of system, by which a man who has bought water rights suddenly finds that he has not bought them and that he never can buy them. He is well in line with Orchard and Farm on these questions and we wish that all the other candidates held the same views.

One other candidate does hold these views. We refer to Charles A. A. McGee of San Diego, the Progressive Republican. Mr. McGee has read the Orchard and Farm editorials on the land question very carefully and he agrees with us that idle acres are the curse of California.

Mr McGee is going up and down the State declaring for a movement for tilling and cultivating intensively all California idle acres susceptible of being put under the plow, and he wants Orchard and Farm to say for him that he is with it in its fight.

"There are," says McGee, "in the State of California 28,000,000 tillable acres, but only 11,000,000 acres under cultivation. There are 17,000,000 acres that never have been scratched by a plow and 3,00,000 of these can readily be irrigated, while the rest is subject to dry farming Why is not food being produced upon this land—food now needed so badly in the present war emergency? I propose, if elected Governor, to create a practical non-partisan land commission, with broad powers. This commission would say to the land slackers:

"'First—Mr. Land Owner, go upon the land and cultivate it within ninety days.

"'Second—If you will not cultivate, then lease it to some one on his own terms who will cultivate it.

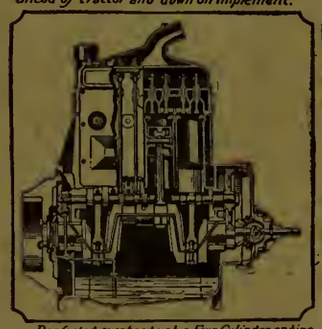
"'Third—If he will not cultivate it, and he will not lease it to anyone who will cultivate it, then list it with the Land Commission with power in the commission to lease it for a period of years at a reasonable rental.

"'Fourth—If he will not cultivate or lease it, or list it with the commission then the State of California shall take the use of these idle acres, paying a reasonable rental therefor to the owner, the same to be fixed by the commission.'"

Well and good! Now let all the candidates declare themselves to simply [illegible] and the curse of California will disappear and our slacker [illegible] will no longer be slacking, but [illegible] to help to win the war.

No Other Tractor Has So Many Good Mechanical Features=

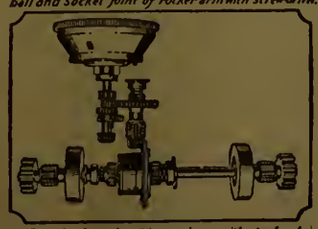
Electric lighting system throws light both ahead of tractor and down on implement.



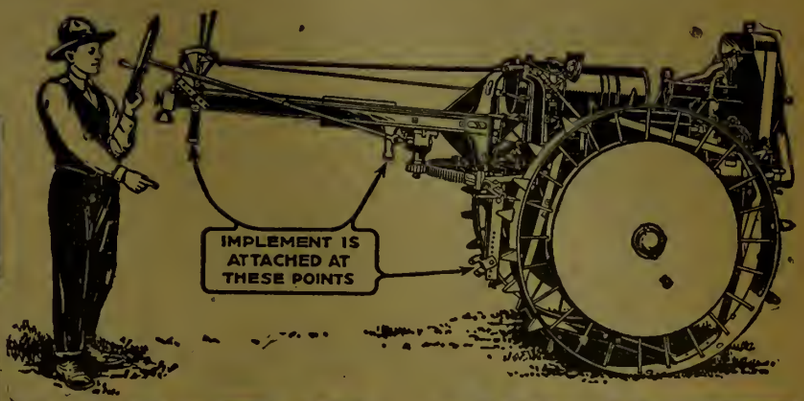
Perfected overhead-valve Four Cylinder engine, with force-feed oiling system under 35 lbs. pressure.

Diameter of connecting rod bearings 2½ in. compared to piston diameter of 3½ in insuring long life.

Valves placed in perfect adjustment by turning down ball and socket joint of rocker arm with screw-driver.



Completely enclosed transmission with steel cut gears, Hyatt bearings, differential lock, and brakes



MOLINE UNIVERSAL TRACTOR

It Solves The Farm Help Problem

EVERYONE who knows what a tractor should do, agrees that the Moline-Universal has three distinct advantages over all other tractors: lighter weight; greater economy and ease of operation; ability to do all farm work, including cultivating; and ONE-MAN control of both tractor and implement from the seat of the implement, where you have always sat, and where you must sit in order to do good work.

Aside from these distinct advantages which the two-wheel construction gives, the Moline-Universal Tractor, Model D, is still the best tractor on the market. In every detail it has been refined and perfected to the utmost limit of modern engineering knowledge.

Self Starter—Electric Lights

The Moline-Universal is the only tractor regularly equipped with a complete electrical starting, lighting, governing and ignition system. The starter saves many hours of productive work, besides eliminating back-breaking labor. Electric lights enable the tractor to be worked at night during rush seasons.

An electrical governor perfectly controls the engine speed. By simply turning a dial, within easy reach of the operator, engine manitains any speed from ½ to 3½ m. p. h., and automatically handles all changes in load.

Perfected Four-Cylinder Engine

The perfected four-cylinder engine is the latest development in overhead-valve construction. With a bore of only 3½ inches a 2½-inch crankshaft is used. The strength and thickness of the crankshaft eliminates all vibration. Oil is forced through hollow crankshaft to all the main and connecting rod bearings under a pressure of 35 pounds to the square inch. The bearings float on a film of oil, so their surfaces never touch.

Double valve springs give unusually quick action with soft seating. Rocket arms are swiveled on ball and socket joints that may be turned down with a screw driver, placing the valve mechanism in perfect adjustment at all times. This engine develops unusual power and is very economical in operation.

Steel Cut and Hardened Gears

The transmission is completely enclosed, with drop forged, hardened, and cut steel gears running in oil that reduce power loss to a minimum. All gears are mounted on heavy duty Hyatt roller bearings, with high grade ball bearings fitted with adjustable collars to take up end thrust. Fifteen Hyatt roller and five ball bearings are used in the Moline tractor. Seven splined shafts are used in locking gears to shafts. This is the strongest construction known, and has the additional advantage that it makes the transmission easy to take apart.

For pulling in soft ground, the two drive wheels can be made to revolve as one by means of a differential lock, doubling their pulling power.

Complete Enclosure of All Parts

The final drive is completely enclosed in dust tight shields, the edges of which are sealed by heavy grease used to lubricate the gears. Every part of the Moline-Universal tractor is protected against friction and wear.

All working parts are accessible. All the weight is so well balanced on two wheels that the rear end of the tractor can be supported with one hand.

The Moline-Universal Model D will give you longer and better service at less expense than any other tractor. It is built for positive reliability.

Our catalog describes the Moline-Universal in detail. Send for it. Address Department 48.

MOLINE PLOW COMPANY, Moline, Ill.

Manufacturers of Quality Farm Implements Since 1865

Don't Wear a Truss

BROOKS' APPLIANCE, the modern scientific invention, the wonderful new discovery that relieves rupture will be sent on trial. No obnoxious springs or pads. Has automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lies. Durable, cheap. **Sent on trial to prove it.** Protected by U. S. patents. Catalogue and measure blanks mailed free. Send name and address today.

C. E. BROOKS, 105 State Street, Marshall, Mich.

RHEUMATISM

Use **ANTI-URIC**, the **famous ROOT** and **BERRY** remedy for the cure of **RHEUMATISM**, catarrh of the stomach and the purifying of the blood; will assist the kidneys; has cured thousands. **Contains no opiates or chemicals,** and the most **delicate stomach** can take it. An outfit (two weeks' treatment) contains an 8-ounce bottle of liquid, a box of tablets for internal use and a 1-ounce bottle of oil especially prepared for MASSAGING the parts affected. Results guaranteed or money refunded. Price, $1.50 per outfit. If not at your local druggist we will send prepaid by Parcel Post, C. O. D. Write today.

ANTI-URIC CO., 32 Front St., San Francisco.

Advertise on the Farmers' Market Space. Big results. Only 3 cents per word

No matter what you have for sale or trade, you should easily find a buyer by running an advertisement on the Farmers' Market Page—only 3c per word per issue. All ads must be in our office by the 21st of the month.

If You Want an "Inexpensive" Piano Don't Buy a "Cheap" One

There is a big distinction between the words "cheap" and "inexpensive." Some folks like to get things "cheap"—only to find that in the end they proved to be the most expensive—because they had to buy another that would give service.

Now we do not sell "cheap" pianos, but we do carry a number of "inexpensive" instruments. The prices are within the reach of most every home. These Pianos will render many years of satisfactory service—they are good, substantial values and are worth every dollar asked. We gladly arrange convenient terms of payment.

We invite you to call at any of our stores—or write us asking for illustrated catalogues and prices.

We are dealers in Steinway and other Pianos, Pianola Pianos, Aeolian Player Pianos, Player Music, etc.

Sherman, Clay & Co.

Kearny and Sutter Streets, San Francisco
Fourteenth and Clay Streets, Oakland
Ninth and J Streets, Sacramento
325 E. Main Street, Stockton
J and Merced Streets, Fresno
190-192 S. First Street, San Jose

Stores also at Portland, Seattle, Tacoma, Spokane

IRRIGATION PUMPS

"Piatt's Wonder Pumps"

Grand Gold Medal Awarded California State Fair, September, 1916

THIS IS A REAL WONDER PUMP

It will pump air and water at the same time. Needs no priming.

It does the work. The price is right, and we can make immediate delivery.

Consult Us Regarding Your Pumping Problems.

Jackson Rotary Pump Co.

329 Holbrook Building,
San Francisco, California.

Bright Future for Fig Crops

By Charles F. Collins

Horticultural Commissioner of Tulare County, Cal

DO YOU know a child that does not like figs? Did you ever notice that the appetite for this delicious fruit usually remains and often grows stronger with the age of the individual? Why should this not be the case, when we consider that this is one of the most nutritious, palatable and healthful foods known?

While it enjoys the distinction of being the first fruit mentioned in sacred history, it seems reasonable to suppose that the fig tree at that time must have possessed different characteristics from those of the present date, or the leaves would have made decidedly uncomfortable underclothing for our ancestors.

While there are over two hundred varieties of cultivated figs, but four are of commercial importance in this State—namely, the Smyrna or Calimyrna, the Adriatic, the Kadota and the Mission.

Many people wonder how the fig produces fruit without flowers, as there is no outward appearance of bloom. The fact is, there are hundreds of flowers inside of each fig. The Smyrna fig, if not fertilized by pollen from the wild fig, will not mature, but dry up and drop before half grown. This can be accomplished only through the agency of a minute fly, known as the fig wasp or blastophaga grossorum, which lives over winter in the larvae form in the capri or wild fig, which, by a wise provision of nature, hangs on the tree all winter in a partly developed state. With the advent of spring the figs and tiny wasps mature and early in June begin emerging from their winter home, covered with pollen with which to fertilize the Smyrna figs. A single wild fig sometimes contains several hundred of these wasps.

How They Are Fertilized

The Smyrna figs are receptive at the time the blastophaga matures and are fertilized as follows: The capri figs, when mature, are picked and hung in the Smyrna trees, from ten to fifty in each tree, according to size of trees, when the wasps emerge and enter the Smyrna figs, carrying the fertilizing pollen. About one capri tree is required for every twenty-five Smyrna trees. Certain figs of the Adriatic type mature their fruit in an imperfect manner, the seeds being barren.

At the present time the Adriatic is far the most extensively grown in this State, but since its introduction the Smyrna is fast gaining ground and promises in time to outrival all other varieties as a dried product, while the Kadota seems to possess many admirable qualities for green shipment, among which are a tough skin, a self-sealing aperture preventing the entrance of insects and freedom from souring or splitting, so common with most figs during the latter part of the season.

Although the character of the soil and moisture conditions are factors to be considered in fig growing in the San Joaquin Valley, the real secret of success in this as in any other business lies in the individual himself.

There Will be No Overproduction

Owing to the fact that the United States imports twice as many figs as she produces and the area of production is forever limited by climatic conditions to certain portions of the interior valleys of California and small areas in Arizona and New Mexico, and considering the value of this fruit as a food, its popularity as a confection and its remarkable keeping qualities when dried, it would seem natural to predict that the bugbear of overproduction, which is frequently prowls in the vicinity of many other branches of the fruit industry, will never molest the grower of figs.

As to the most profitable variety to plant, each has its advocates, and at present all are profitable. The Adriatic will, no doubt, stand most neglect, while the Smyrna is pre-eminent in flavor and sugar content. The Mission, though still a favorite with many for home use, is gradually losing favor as a commercial variety because of its lack of saccharin matter and low market value, the trade seeming to prefer a white fig.

Climatic and Soil Requirements

The fig tree will endure about the same degree of cold as the olive or a minimum of about 14 degrees for mature trees, if not long continued. It is less exacting in its soil requirements than in that of climate and will thrive upon a wider range of soils than any other fruit tree, though its size and quality of the fruit is considerably affected by the character of the land upon which it is grown. It is generally conceded that the best Smyrnas are grown on the heavier types of soil. Less water is required by the fig than most other fruit trees, and an oversupply or irregular irrigation will cause splitting and souring in most varieties.

The fig is propagated very readily from cuttings, which should be made from stocky, short-jointed shoots of well matured wood of the previous season's growth and about eight or ten inches in length, and should be planted with but one bud above ground. With good care, they will be ready to transplant the following year, though many prefer two years in the nursery. In transplanting, great care should be taken in protecting the roots from exposure to the sun, as they dry out more quickly than most fruit trees, and the young trees should be protected from sunburn during the first summer in the orchard.

Planting Distances

The distance for planting should be gauged by the nature of the tree. Probably a distance of thirty-five feet each way is sufficient for the Smyrna, while the Adriatic should not be closer than forty feet, and the Mission needs still more room. Interplanting with some tree of smaller growth, to be uprooted when large enough to crowd, may be practiced, or, still better, intercropping with annual crops which, if water supply is ample and followed by good cultivation, will not result in any injury to the growing trees.

The most interesting fig tree it has ever been my good fortune to see is on the General Bidwell ranch, adjoining the city of Chico. It is a black fig, planted in 1856, and measures eleven feet in circumference, one foot above the ground. The ends of the drooping branches have taken root in a circle around it, forming an enclosure 150 feet in diameter. It bears regularly and produces a crop in proportion to the size of the tree.

It's a Healthy Tree

Generally speaking, up to the present time the fig tree has not suffered from insect pests or diseases. Some trouble has been experienced with nematodes in sandy soil and gophers are known to be born with or acquire very early in life an abnormal appetite for its roots. It is highly resistant to crown gall and oak fungus which cause such serious losses in many of our deciduous orchards.

But little pruning is required and this should consist almost entirely in removing whole branches where they are too thick.

Young trees must not be kept growing too late in the season, but moisture should be withheld and the wood allowed to mature, otherwise the early winter frosts will injure them severely. This is a very important consideration in the growing of figs.

Only the future itself will reveal what the future will bring forth, and those in the best position to judge may be wrong as to what the future

vation will require in the horticultural line, but it has been the opinion of the writer for several years past that all things considered, there is no brighter future for any fruit in this State than the fig. It is a most delicious and valuable food, fresh, dried, canned, preserved, pickled or converted into innumerable sorts of confections, and the demand for good figs and fig products is growing rapidly in all parts of the world. The demand for any fruit will fix a fair price for it to the grower. If it does not it is up to the grower to see that it does, and experience has taught him how to bring this about.

Very Easy to Handle

No fruit grown is so easy to harvest and prepare for market. There is a very limited territory suitable for its production and the supply does not equal one-third of the present demand. With organization of the growers, standardization of the product, proper advertising and plenty of figs, the demand could be enormously increased, greatly to the advantage of both the producer and consumer.

My only excuse for not being the possessor of a fig orchard is the fact that I have no vacant land upon which to plant the trees. Were I so fortunate as to be the owner of an acreage of unimproved land suited to the fig, I would certainly plant it to this fruit with the expectation of making more money to buy more land upon which to plant more figs.

Thrice blessed is he who can rest beneath his own vine and fig tree and enjoy the fruits thereof.

If the American farmer doesn't furnish the food to win the war, the German farmer will.

Fuel Cost of Tractors

THREE hundred tractor owners in a Western State were recently sent a questionnaire as to the full cost of running their machines. The returns showed that on a basis of 20 cents a gallon for gasoline and 10 cents for kerosene the average cost per acre was 25 cents for kerosene and 50 cents for gasoline

The average quantity of fuel consumed per acre in plowing for all tractors on the farms reporting was two and one-half gallons. This figure did not vary materially for the different sized outfits, so long as each pulled its normal load. It is possible, however, to reduce the fuel consumption somewhat by overloading the tractor; that is, adding one more plow bottom than the machine is intended to pull. This reduces the distance the machine must travel to plow an acre, and, consequently, results in a slight saving of fuel. The saving is not in proportion to the actual distance traveled, however, since with the overload there is much more slippage of the wheels and consequent loss of power.

There is some slight difference in the fuel consumption between different makes of machines, and also usually a slightly lower consumption in some makes of tractors where gasoline is used instead of kerosene. These differences, however, do not usually amount to a great deal, and for most purposes the figure of two and one-half gallons of either gasoline or kerosene per acre of plowing will be as nearly accurate as any that can be used for an average.

The investigation shows that less difficulty is being encountered by owners of kerosene tractors in burning the lower grade of fuel than was indicated in 1916. Slightly more than 50 per cent of the tractors on the farms reporting are operating on kerosene, and where the machines have been especially designed to burn this fuel the results are apparently very satisfactory, particularly in view of the present price of kerosene as compared with gasoline, the former costing only about one-half as much as gasoline. However, the greater ease in operating on gasoline, and the somewhat greater certainty of steady operation, are sufficient to cause many men to prefer this fuel to kerosene.

Order Fertilizer Now

THE United States Department of Agriculture is urging farmers to make known their fertilizer needs for the fall planting at the earliest possible date. It points out that this will enable dealers to combine their orders into full capacity carload lots.

This step is made necessary by the difficulties in handling freight at this time. The railway systems of the country are taxed to the utmost to move the tremendous volume of supplies to our troops. Many farmers who ordered their spring fertilizers late did not receive them until after planting time. Some failed to get them at all. Prompt action will tend to avoid disappointment this fall and enable every farmer to start his crop right.

The intelligent use of fertilizers is one way by which the farmer can increase crop production and at the same time make the labor expended produce more than formerly. There was never a time when the use of fertilizers was so profitable as now, with crop prices high and labor scarce.

The railroads of this country are now being operated by the United States Government. Co-operate with your government by ordering your fertilizer early. It will relieve the car shortage.

The war calls for the team work of soldier son and soldier father—the hero of the trenches and the hero of the furrow.

Dependability of the Tractor

THE reliability of a tractor depends to a very great extent upon the ability of the operator. Of more than 300 tractor owners in Illinois 54 per cent reported that their outfits were not disabled a single day when needed during the past season. Of the remaining 46 per cent the average number of days their tractors were out of commission when needed was five. This average, however, did not include one man who stated that his machine was out of commission about half the time.

The reports of tractor owners indicate that with a careful and proficient operator a gas tractor is a very dependable source of power. Occasional slight delays probably will be encountered, but serious ones will be exceptional, whereas with a careless or incompetent operator expensive delays are apt to be frequent.

Of the tractors owned by Illinois farmers reporting, about 90 per cent are operated by the owner or some member of his family, the best results usually being obtained by this class of operators. Thirty-six per cent of owners reported no time lost in the field on account of trouble with the outfit. This probably means that the time lost was not worth mentioning. Most men do not consider it trouble so long as they know at once the cause of stoppage or other irregularity in the engine's operation, and are able to remedy it promptly. The average time lost per day by the 64 per cent reporting trouble is three-quarters of an hour.

Assuming that our army of 1,000,000 men had been mobilized on the first day of October, our automobiles, traveling at the rate of 100 miles a day, with four passengers to a car, could have carried every man in the army 600,000 miles up to the end of May.

This $50 Phonograph and 20 Double-Disc 10 In. Records 40 Different Selections Total Retail Value, $65 Special, $32.50

This Amazing Offer

FOR TWO WEEKS ONLY!

So you must act at once. It is the greatest Phonograph offer made in California. Think of it—a high-grade, Standard $50 machine and a whole selection of finest Records, total value $65.00, at One-half Price. You can never hope to duplicate this unprecedented Phonograph bargain.

Our Records excel in quality and durability. Played with our Sapphire Jewel Point needle, they do not scratch. The Jewel point is rounded to fit perfectly into the sound grooves and does not cut the Record, thus making the record last for years. We give you one Jewel point FREE with the machine. There are very few makes of records as good as ours, and there are none better. Send in your order at once. The Repertoire of our records includes thousands of the world's choicest musical compositions, rendered by renowned artists, musicians and musical organizations. Band, classical, religious, and dance music, grand opera, songs and latest war and popular successes. A long list of new ones issued each month. Our records are full 10 inches in size, two selections on each record, and are unequaled for tone, clearness and perfect reproduction.

Size
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[illegible]d Oak
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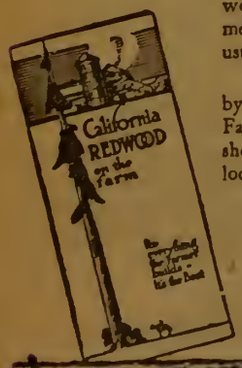

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—are vaporizing points. In Red Crown gasoline they form a continuous, uniform chain—giving steady, dependable power. Look for the Red Crown sign.

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(California)

RED CROWN GASOLINE

The Gasoline of Quality

Edited by E. C. Abbott, State Lecturer.

Orchard and Farm is the Official Organ of the California State Grange.—Editor's Note.

ONE of the most important and perhaps the most difficult thing in the Grange is the lecturer's hour. It is in charge of the lecturer and is one hour long. The lecturer should insist that the full time be given him, and then make the time seem so short that the members would like more. Rural life becomes monotonous when spent entirely in work, which then becomes drudgery.

Make the hours of work shorter, play more, devote some time to the study of rural problems and the work becomes more profitable and life more enjoyable. It is in the lecturer's hour of the Grange that part of this relaxing ought to be found. Here the good lecturer will bring up the different rural problems for discussion. Some one may be induced to give a reading, another an essay or perchance a song. Almost everybody is interested in dramatics. Get the young people to give a play. Get up a degree team or have charades. Picnics are occasionally in order. Perhaps your physician would give a talk on hygiene or your banker on taking care of your money. The opportunities are limitless. There is much latent talent in every community, possibly shy and retiring, that needs some one to bring it out. Study each member and try to find something they can and will do.

Make some community need a subject for discussion and action. All these and many more are within the province of a good lecturer, and no other should apply. It is a work that brings its own reward, for he will be surprised to find how he has developed himself in his attempt to develop others.

A pretty lively discussion was started in one Grange when the lecturer put up to the members this topic: "Resolved, that men are lacking in the quality of inquisitiveness which is so common to women." It is easy to believe that members got on their feet and talked who had never taken part before in any discussion.

The "continued story" idea is not a bad one, several persons in turn to write a chapter each, and all given full license to write as they please, except that the characters started in the opening chapter must be carried through to the end. Quite a field for originality is provided by this plan

Good for Siskiyou

DESPITE the inroads of the war upon the Grange membership, Siskiyou county, Cal., has been making fine progress of late in Grange work, under the able leadership of State Deputy Granville Libby. It is very gratifying, as a Gazelle correspondent puts it, to see the wide-awake, come-to-their-own spirit of the Siskiyou farmers and farmerettes.

At Gazelle the Grangers have presented to the community a beautiful service flag in honor of the enlisted and drafted men. Many of their recent meetings have been open ones, and numerous guests have enjoyed the literary features of the programs. The Grazelle Grange is doing a lot of community buying. It has recently given a free watering trough of cement to the town. A greatly appreciated gift.

At Big Springs about sixty Grangers are pledged to help the community as they can in the present crisis, and there is a flourishing new organization of the Patrons of Husbandry at Greenhorn, with seventy-six charter members. Then there is another new Grange at Greenview, with seventy members.

The Edgewood Patrons, thirty-six in number, are all working hard to make their order successful in that place.

The Sisson Grange began new life after its reorganization on July 1st. War pressure was the main cause of the former decline of this organization, for all towns in Siskiyou county Sisson has sent the most volunteers in proportion to population.

"A Granger" writes to Orchard and Farm that the article by Mrs. R. Bryant in the June number "went straight to the hearts of the Siskiyou Patrons." The same correspondent highly praises Past Master Joel Holmes and State Deputy Libby for the encouragement they have given to the work in that county.

Another example of the influence of the Grange towards good government was shown recently in Siskiyou county. An application for a saloon license had been made to the Board of Supervisors. The Grangers passed a resolution protesting against it and asking that no more saloon licenses be granted during the war. The Supervisors were unanimous in adopting the Granger resolution.

Tulare Affairs

A RECENT discussion by Tulare Grange of the part farmers should take in politics brought out many ideas, among others that politics is the public's business that farmers should take part. If it is a mere matter of electing office holders then farmers should take part by all means, and elect men who will represent them and the farming interests properly.

The Grangers of Tulare and vicinity are to have the use of C. C. Dean's Eshom Valley ranch for outdoor camping.

A Hooverized Banquet

THE last quarter has been a busy and profitable one for Arroyo Grange. Many educational subjects have been discussed and action taken on important matters. They have purchased a drum for Arroyo school and voted to use all surplus funds to purchase war saving certificates. They also passed a resolution asking all Granges, lodges, churches and other bodies who may be sufficiently patriotic to unite in choosing and electing legislative candidates who can be depended upon to vote for the ratification of the federal prohibition amendment.

They recently entertained a large delegation from Fort Romie Grange. A fine program was rendered and a Hooverized banquet served.

A trip to Campbell to visit Orchard City Grange was made by 45 members by automobile

Going to Syracuse?

THE next meeting of the National Grange will be held in Syracuse N. Y., opening Wednesday morning, November 13 next, and continuing the usual ten days' time. This is the official announcement of the executive committee of the National Grange, now made to the Patrons of the United States.

Syracuse has been selected as the convention city, after careful consideration of the various cities in New York State which tried hard to land the event, and the sessions will be held in the Hotel Onondaga, which is one of the finest hotels in the country and amply equipped for all the needs of the great gathering of Patrons. It has 500 rooms and, outside of New York City, is the largest hotel in the Empire State. Not only will the delegates be quartered in the Onondaga, but the sessions will be held in a large hall in the same building.

The seventh degree will be conferred in the Empire Theater, only a short distance from the hotel, which makes all the session arrangements especially convenient for its attendants. The theater is large and well equipped, especially with the lighting facilities so much needed in bringing out this beautiful degree. That the class of seventh degree initates will be very large is certain, possibly the greatest that has ever been given the degree.

Friday evening, November 15, is the time set down for the giving of the seventh degree.

Owing to war conditions and the railroads being under government control, it is doubtful if any reduced convention rates can be secured, but they will be obtained if possible.

Altogether! Join in the Chorus!

TRY this at some patriotic Grange meeting having some one sing the solo and the members join in the chorus.

KAISER BILL.

Tune: "Yankee Doodle."

Old Kaiser Bill one summer day
Was feeling kind of breezy;
Says he, "I guess I'll lick the world;
I think it will be easy.

Chorus:—
Wollop him with peas and beans;
Paste him with potatoes;
Hammer him with cabbages
And soak him with tomatoes.

And then this chesty Kaiser Bill
Conceived another notion,
He built a thousand submarines
And thought he owned the ocean.

No ship with food, said Kaiser Bill,
May come across the water;
My submarines will send them down
To Davy Jones' locker.

"Friend Bill," said Uncle Samuel,
"That's going pretty strong, sir,
And if you try a stunt like that
You'll surely get in wrong, sir."

Then Uncle Sammy filled a ship
With flour and beans and lumber;
A submarine let drive at her
And blew her all to thunder.

"All right," said Sam, "if you want war,
By gum, you'll get your fill, sir;
I'll call two million fighting sons
And make you take your pill, sir."

They're hasting him with aeroplanes,
With guns they're getting handy;
They'll teach the Kaiser not to fool
With Yankee Doodle Dandy.

The October Annual

STATE Master F. L. Hunt of Napa and Executive Committeeman G. R. Harrison of Sebastopol went to Ukiah recently to confer with members of the order and citizens there preparatory to the meeting of the State Grange, to be held there in October. The Patrons and citizens of Mendocino county expect to give the visiting Patrons a royal welcome during the annual meeting.

The Patrons of New York State, with J. J. Lowell as State Manager, have adopted as their slogan for the meeting of the National Grange "Ten Thousand Candidates for the Seventh Degree." Here's hoping that it will be realized.

About Programs

NEVER forget the times your members responded to your call; always forget the times they disappointed you.

Encourage Grange music; put some into the program whenever possible; frequently compliment the singers; have plenty of books.

Don't plan more of a program than the hour will permit. It's an unpardonable offense to ask the preparation of a feature and then not have time to use it.

Be on the watch for the member who always listens attentively, but never says anything. He may be thinking lots of good things. Draw him out.

Don't assume the Master's gavel during the lecture hour—it doesn't belong to you. The Master's duty is always in his station, keeping order, while you do your own work.

Keep on smiling.

A Crooked Night

THERE must be a good time occasionally in the Grange, with all the inspiring and educational things, and one bright lecturer suggests a plan of getting it by a feature that ought to work out all right. This is to have a "crooked night," with the idea carried through everything—master's chair at wrong end of hall, regalia transposed, members dressed wrongly, men's vests buttoned behind, ties likewise, hair parted crooked, aprons worn on back, food all mixed up, sugar in salt shaker, coffee served from milk cans, crooked boards used for waiters. Program carried out in same idea—songs sung backward. All kinds of things will suggest themselves for such a program—simply keep the minutes clear and insist that the regular Grange ceremonies be kept straight and orderly, confining the fun strictly to the lecture hour and ending there.

A Patent Medicine Debate

IF a really lively evening is wanted some night in the Grange, introduce this topic and ask the members to prepare themselves well in advance: "Of the seventy-million dollar curse of patent medicines, which is your favorite?" If carefully started, this subject is almost sure to get the members on their feet, expressing, no doubt, a great variety of opinions and proving very instructive. For a closing ask for a sensible, straight-to-the-point talk from a physician, provided one is available, who will handle the subject conscientiously and whom everybody has confidence in. A bulletin on patent medicines can be obtained from the United States Department of Agriculture, Washington, D. C.

Tightening Loose Wheels

THE problem of reducing the expense of tightening loose wheels has been solved by a man in Modesto, Cal. His discovery of a method of tightening loose wheels without removing them or any part of them is a boon to motorists and owners of wagons and carriages, and has already come into popular favor, being used extensively throughout the Western States.

This man has compounded a liquid preparation, which, when squirted into the cracks caused by shrinkage at the hubs and felloes, quickly swells the wood and makes all the parts fit as tightly as when first joined. Thirty minutes after the application the swelling has taken place and the wheels are ready for the road.

Warm drinking water for the dairy stock will save feed and also benefit the milk flow. It saves feed because it does not draw on the vitality of the cow as does cold water. It benefits the milk flow because a cow will not reach her maximum production unless she drinks water abundantly.

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This hosiery is long-wearing and economical. Every pair is **strongly** reinforced at points of hardest wear. Legs are full length; tops are wide and elastic; sizes correctly marked; colors will not fade nor wash out.

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Suspensory and Rupture Appliance. J. C. Riley's combination patent. Weight but 2 ounces. Fits like a glove. Why suffer a minute longer when relief is at hand at a moderate price? Made by a man who cured himself. Descriptive circular and prices sent by request.

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By HENRY GEORGE

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Moving parts run in oil, absolutely enclosed; free from dust.

Equipped with Throttling Governor, Carburetor and Friction Clutch Pulley. Cooled by circulating water system, driven by engine pump.

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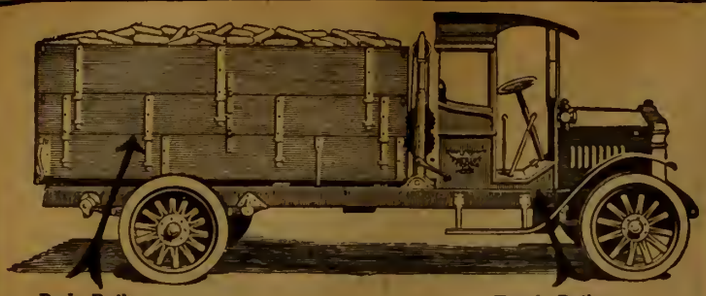

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To bring better markets nearer—

To master bad roads—

To save high-priced horses—

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But now—the farmer has a real truck—built in the center of Agricultural America—by experienced truck and body makers, in a new, complete and modern factory—and built for farm service.

Every farmer with 160 acres or more should find out what a Patriot Farm Truck will save. Write for information.

HEBB MOTORS COMPANY

Manufacturers of Patriot Farm Trucks

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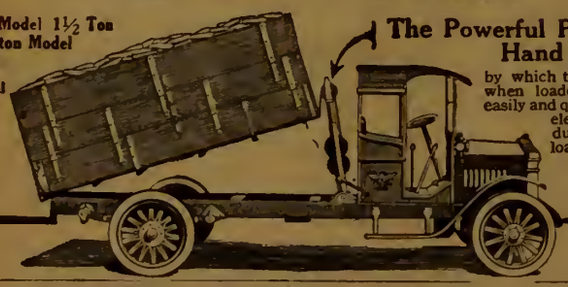

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by which the body, when loaded, may easily and quickly be elevated to dump its load.

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Watsonville, Cal.

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PACIFIC ELECTRIC — COMFORT · SPEED · SAFETY

Pacific Electric Railway

Half-and-Half Dairy

PACIFIC COAST dairymen or those owning dairy land would do well to study the half-and-half dairy rental system in vogue in the Middle West.

This system, but little practiced in the Pacific States, is the most common in use and the most satisfactory in renting dairy farms in representative dairy regions near Chicago studied by Farm Management specialists of the United States Department of Agriculture. Generally speaking, under this system the landlord supplies the land, the tenant the labor, and each shares the expenses and income equally.

The study was made on 143 farms in Green County, Wis., and Kane County (the Elgin district), Ill., where dairying is a comparatively old, well developed and profitable industry.

In the report of the study it is brought out that while this system is particularly applicable to the regions studied, it is believed to be suitable in dairy sections generally.

Under the half-and-half system the landlord furnishes the land, buildings, the greater part of the seed and fertilizer, and half the productive stock, while the tenant furnishes horses, machinery, half of the productive stock, part of the seed, and sometimes part of the fertilizer.

All stock is fed usually from the grain and hay owned in common. When a feed of any kind is bought, its cost is shared equally between the landlord and tenant. In general, each party pays the taxes on all property owned by him, including the farm road tax, though in many cases in the North Central States all the farm road tax is worked out by the tenant.

Under this system the poultry frequently is owned exclusively, in limited numbers, by the tenant, and he gets the proceeds therefrom, but with this exception each party generally receives one-half of the proceeds of farm sales of all products of whatever nature.

Less frequently dairy farms are share-rented on the third system, the landlord supplying everything but the man power, which is furnished by the tenant, and getting two-thirds of the sales of all products, while the tenant receives one-third. When feed is purchased the tenant pays one-third cost.

The length of the lease in the regions studied ranges from one to five years.

In the Wisconsin district 76 per cent of the leases were for one year only, none being for a longer period than three years, while in the Illinois district 63 per cent of the leases were for one year. In the Wisconsin group 35 per cent and in the Illinois group 27 per cent of the leases were verbal. Seventy-five per cent of the farm income on the farms of the Wisconsin group and 85 per cent on those of the Illinois group was from dairy cattle and dairy products. In the Wisconsin group 21.5 per cent of the cows were home-raised heifers that became fresh during the year; 18.9 per cent of the herds were discarded or sold as dairy cows.

The farmers prefer to raise their cows instead of buying them, and on over half of the farms studied there were pure-bred Holstein bulls.

A Fodder Problem

CATTLEMEN have been combing the country for feed. Last fall they purchased the Egyptian corn fields on the floor of the San Joaquin valley and turned their stock on them after grain was harvested. Just now no one seems to know, just the same, what Egyptian corn fodder is worth per ton. I had quite a lot grown in the tree rows of a young, unfenced olive orchard. For a considerable time two rather ancient horses doing light work only, and two colts have been kept hog fat merely on the corn fodder, first cut and fed green, then fed dry, together with what they could pick off a very dry, bare pasture used up as a real pasture long months ago. Therefore, I consider that corn fodder is decidedly worth while as feed.

All I could possibly need was stored in barn, or shocked in field. Therefore I called on a cattle man close by and said I had corn fodder to sell but was unable to find what it was worth. He said he was after all the cattle feed he could get, but did not know either, but would find out. But nobody in the country side seemed to know its approximate value. So I hunted up a copy of Henry's Feeds and Feeding and found that there was about three-fifths as much digestible material in field-cured corn fodder as in grain hay.

Egyptian corn fodder seems inferior as a rule to Indian corn fodder, so I made a rough estimate that Egyptian corn fodder, mowed, dried and raked would probably be worth at least a third as much as hay for stock which were not working, then made allowance for loss of uneaten stocks, and a big allowance for loading, which is a mean job in my judgment, and named a price of $3 a ton, raked up in the field. The bargain was closed at that basis. If anyone knows what would be a fairer price and why it would be a fairer price, please speak up. The information would be gratefully received, for nobody around here seems to have the slightest idea what fodder is worth to haul off and feed.

While this subject is to the front it might as well be finished up. There is no question but what one lot of Egyptian corn fodder could easily be worth three times as much as another lot. The finer the field, the poorer the fodder, for growth will be so strong that stocks will be more like canes or clubs, than like real cattle provender. One tree row that did exceptionally good for grain, through strong soil and abundant irrigation, was so rank that the stems will evidently be largely waste. In other parts where soil was sandy and weak and growth thin and scant, the stems seem so slender and soft that they ought to be entirely consumed and very palatable. In places where a second growth came up and there was a lot of slender shoots, the fodder looks extremely good. In planting with the idea of feed, more than grain, thick planting gives of course the finest quality fodder.

Some of my corn was cut and shocked, the rest mowed, left to cure a few days, then raked up to cure until hauled off. Without knowing the general belief about the subject the following is my opinion as to the

[illegible]ds to handle it. Corn cut [illegible]ked and left to cure as long [illegible]quired, makes by all odds the [illegible] fodder. Even rather thick stems [illegible] to soften up in drying, while [illegible]s exposed more to the light and [illegible]em to harden up and get woody. [illegible]wise the shocks are very con[illegible]nt to load, also to unload, as the [illegible] are all lying the same way and [illegible] by side The only objection is [illegible] length of time required to shock [illegible]rn. If feed was very cheap it [illegible]t not pay to take the time and [illegible]ble to shock it.

[illegible] any one who has not handled [illegible] feed, wishes to get an idea about [illegible]ing corn fodder, particularly good, [illegible]y fodder, when stems are thick [illegible] long, after said fodder has been [illegible] and raked, let him sprinkle a lot [illegible] matches over the table, rake them [illegible] as confused a pile as possible, and [illegible]en shovel them into a tumbler with a two-tined kitchen fork.

To make the test accurate, though, the fork should be fixed to spear two [illegible] three matches each jab and hold [illegible] to them like grim death until forci[illegible]ly removed therefrom. Loading, however, is not half the job that getting said fodder out of the wagon into the barn is.

If, however, such fodder could be merely hauled into a field and dumped [illegible] to the ground for stock to eat, the [illegible]ing in labor over shocking corn would more than justify the method. Otherwise shocked corn is of such superior quality, and can be handled [illegible] much easier both in loading and [illegible]nloading, that in my opinion corn should always be shocked provided [illegible]y prices are high and time and [illegible]bor expense will permit shocking.

D J W., Exeter, Cal.

A Cheap Fly Spray

FLIES cause considerable annoyance to dairy cows during the summer and not only does the [illegible]rritation caused by the flies tend to [illegible]wer milk production but the restlessness of the cows is a frequent [illegible]use of inefficient milking says Hoard's Dairyman.

A good fly spray can be made from: [illegible] quarts coal tar dip; 4½ quarts fish [illegible], 3 quarts coal oil; 3 quarts whale [illegible] and 1½ quarts oil of tar.

Dissolve 3 pounds laundry soap in [illegible]ater, add the ingredients of the [illegible]ray and bring the whole up to 30 [illegible]llons with lukewarm soft water. This spray will keep off the flies and [illegible]revent the coats of the animals be[illegible]ming harsh.

The cows should be sprayed twice [illegible] day—in the morning after milking [illegible] in the afternoon when in the [illegible]rn for silage or green feed. With [illegible] portable cart, made from a half [illegible]rrel by attaching wheels, and a spray [illegible]p and nozzle, two men can spray [illegible] cows in five minutes.

Thirty gallons of this mixture will [illegible]ray 40 cows two times a day for [illegible] days at a cost of one cent per [illegible] per day.

How to Prevent Horse Colic

COLIC in horses usually means indigestion It may consist simply of a few spasmodic pains [illegible] which the animal quickly re[illegible], or the indigestion may ter[illegible]te in inflammation of the bowels, [illegible]h often proves fatal within 24 [illegible] Some forms of indigestion are [illegible]licated by bloating, and the in[illegible]l pressure may rupture the ani[illegible] stomach or cause it to die of [illegible]tion.

[illegible]st cases of colic can be pre[illegible] by careful feeding. Sudden [illegible] of feed should be avoided. [illegible]d in a stage of curing, such [illegible]ts newly cut grass, and new [illegible]ways dangerous for horses. [illegible] such as corn, should [illegible] oats added to give it [illegible] and render it lighter [illegible] practice in feeding [illegible] hot summer [illegible] the evening grain ration with an allowance of hay. This gives the animal time to become somewhat rested and cooled, and the more concentrated feed will be much less likely to cause indigestion. The drinking of a liberal amount of cold water is likely to chill the intestines and cause colic.

One quart of raw linseed oil mixed with two tablespoonfuls of turpentine, if given at an early stage of the colic, will help remove the undigested material from the horse's bowels and thereby give relief.

A common method of drenching a horse is to pass a loop in the end of a rope around the upper jaw just back of the incisors. The other end of the rope may then be fastened so that the horse's head will be raised and the medicine, when poured into its mouth, will run down into the animal's throat. Oil should be given slowly, a swallow at a time; and upon any indication of choking, the head must be instantly released, as the inhaling of oily preparations into the lungs is likely to cause pneumonia.

Colics which are apparently mild at the beginning may quickly develop into dangerous complications, and a colic that exists for 12 hours will often kill the animal.

Best Feed for Young Pigs

ONE of the best feeds for young pigs is shelled corn. When pigs are about three weeks old, sometimes less, they begin to nose around for something to eat, and at this time, in order to make them gain more rapidly, shelled corn should be supplied.

It should be in a self-feeder in a pen where the pigs can go to it and will not be bothered by any of the rest of the hogs. This can be arranged by a creep just large enough to admit the pigs handily. Don't forget that these little fellows grow quite rapidly and from time to time the creep must be made larger.

After the pigs are four or five weeks old, especially if they do not have good grass pasture, the addition of some shorts, tankage or oil meal is advisable. Nothing would be better, however, than skimmed milk.

The self-feeder in which is kept corn and other feeds should be maintained right along until weaning time, and after that if the pig is intended for market purposes. Pigs to be used for breeding purposes may be kept on a self-feeder all the time with splendid results.

Feeding Alfalfa to Horses

SOME interesting experimental results have been secured in the feeding of alfalfa in order that definite figures may be known as to the value of alfalfa as a feed for horses. In one trial covering 140 days with three lots of horses at hard work, the following results were secured: Lot 1 received alfalfa hay, two pounds oats, and eight pounds corn; lots 2 and 3 received prairie or timothy hay, one-half as much corn and four times as much oats as lot one. The alfalfa hay lot received one-sixth less grain and one-fourth less hay than the lots receiving timothy and prairie hay and showed no ill effects whatever from the alfalfa feeding. During the test period they gained an average of twenty-five pounds each, while the horses in the other two lots lost weight. From this test and from a number of others which have been carried out at the agricultural experiment stations, it is safe to say that the feeding of good quality alfalfa hay to horses cuts down the grain requirements at least twenty per cent below that which is necessary when such hays as prairie hay are fed.

With horses which are not working, alfalfa hay, a supply of good, bright straw, and perhaps a very small allowance of grain is a splendid maintenance ration. When horses are at heavy work it is, of course, necessary to supply a grain mixture in addition to the alfalfa.

You Can't Afford This

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We will demonstrate our attachment on any ranch within 100 miles from Los Angeles and guarantee satisfaction to prospective purchasers.

This attachment is built on the simplest and strongest mechanical lines honestly built to give honest service. Has very few parts is strong and rugged and will stand up under hard work.

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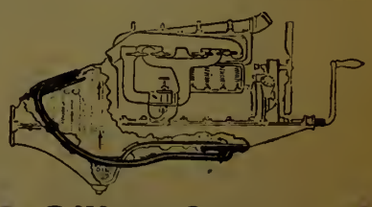

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Sacramento, California.

Benefits of the Single Tax

(Continued From Page 5)

California, where the voters in November will again be called upon to decide between land using and land profiteering, between labor and industry versus land speculation and monopoly.

Mr. Kern Avoids the Issue

It is admitted that the curse of the Golden State is its huge land monopolies and speculations—its twenty million wonderfully fertile idle acres. And the president of the Anti-Single-taxers in his remarks upon the opening statement for Single Tax, avoids the issue entirely, and either through error or interest tries to make out a case for the monopolistic falsehood that Single Tax would throw the burden of all public expenses on Land Owners. It would do nothing of the kind. It would throw the burden on the Absorbers of Land Values. It would put the land values that now go into private pockets in the public treasury—and untax all kinds of industry, labor products, and legitimate business. That's its purpose, plainly written in the bill—any school boy can understand it. "All public revenues shall be raised by taxation of the value of land," is the reading. It doesn't say "land"—it says the "value of land." The difference is as great as that between east and west.

Farm Value Insignificant

The farmer's "value of land" is insignificant. In comparison with the vast city values and the potential values of the hoarded, monopolized millions of idle acres, mines and oil wells, the value of all the farming acres in California is nominal, not worth talking about.

The farm values are the houses, barns, drains, wells, groves, vineyards, tools, stock, etc., etc., things created by human labor—and these are all untaxed. The bill specifically says so. It places the tax burden on the "value of land irrespective of improvements"—there shall be no tax on improvements. All the working farmer's value that is worth talking about consists of improvements. What do we mean by "improvement"? The courts, for centuries, have ruled that improvements are "any work of man in, on, or under the surface of, land." And these by Single Tax are to be freed of their present tax burden.

There never was a land tax in the Christian world—outside the quibbling of the land monopolists' agitators. What little ground tax there now is in California is assessed on the Value of the land.

If the land values of California were owned by a million families, as they should be, and as they will gradually become under the Single Tax system, no one would complain of paying a just or necessary tax rata for the administration of public affairs. But the land values are monopolized by a few big holders. Ninety per cent of them are owned by about three per cent of the population—and this three per cent hates to let go.

Even now, when the greatest need of the republic is increased production and more war revenue without further burdening the poor people and labor and industry, these land monopolizers and reapers of the billions a year of population-produced land values, will spend a million dollars to mislead and confuse the public mind on the beautiful, clear, simple truth of Single Tax.

Settlement Discouraged

The nation wants food and California wants population—and only the high price of farming land keeps millions of settlers from streaming in here; keeps hundreds of thousands of our own population from going on the land.

You can't raise crops on high valued land—not even oranges, in the long run. And this "Stanislaus plan," and the Durham State colony, which seek to make crop growing possible on high priced acres, while they ironically give temporary relief to a few hundred land users, do nothing at all to relieve or cure the general situation resulting from land speculation and monopoly. Indeed they only intensify the evil, for they increase the speculative price of land and make it still more impossible for other settlers to come here and procure land at a price that can be paid out of the crops grown on it.

Only Single Tax can cure the "Curse of California" and take the fictitious values out of unused land. Population will rapidly increase under single tax—it will rush here where farming land is cheap—and this increasing population will bring with it actual, stable, use-value of land. Villages will spring up everywhere and the whole population of the State will be engaged in the production and distribution of the earth's yield.

Scarecrow of the Antis

Mr. Kern naively, or ulteriorly asks: "Does he mean that by placing an additional burden of taxes upon the land that it will become more attractive to settlers?"

That's the conventional Anti-Single Tax scarecrow. It is about worn out in this State, the historic battleground of the republic for Free Men on Free Land. Why should Single Tax mean anything so silly? It means to take all or at least nine-tenths of the tax burden off all land users and place it on the private takers of the publicly-created land values. It means to pay all public expenses with unearned incomes arising from increasing land values.

What Canadian Experience Shows

Mr. Kern wanders to irrelative issues, to Bolshevikism, to French cooking and to sewer gas—and then to Vancouver. The space at my disposal is too valuable to follow him in such by-paths, but it may be well to observe that the justice and the practice and the theory of Single Tax are well borne out by the handful of statistics he brings down from Canada.

They prove beyond doubt that even a slight increase in the land values tax will greatly stimulate building and all kinds of useful effort, and attract settlers at once. These settlers gave increase of land value—but this increase was gobbled up by the rent collectors and speculators, instead of being placed in the public treasury. Of course, land speculation increased. They issued bonds and resorted to all sorts of devious schemes to raise revenue, instead of taking the "unearned increment." We will not do that in California. Under the terms of the Single Tax Amendment it cannot be done. How and why it cannot be done, I am most anxious to show to anyone who fails to read the issue of the bill in its plain and simple language:

The People of the State of California Do Enact as Follows:

A new section to be known as Section 15 is hereby added to Article XIII of the Constitution, to read as follows:

On and after January 1, 1919, all public revenues, state, county, municipal, district, shall be raised by taxation of the value of land irrespective of improvements thereon; provided, that war veterans, college and church exemptions in Sections 1½ and 1a, Article XIII of the Constitution are not affected hereby.

The intent of this Single Tax amendment is to prevent the holding of land out for speculation and to apply the land value which the community creates to community purposes.

All constitutional provisions and laws in conflict herewith are hereby repealed.

The issue of Single Tax is simple harmony and justice as against the present taxation confusion and terrible, admitted, injustice of modern times, fundamentally caused by land monopoly. This is always its issue—but now when the idle acres and other natural resources of the nation threaten the safety of the republic, Single Tax becomes the war issue of the world.

Raise More Turkeys

By Charles Randles

THERE should be no decrease in the production of turkeys on the farm, but instead there should be a decided increase. While the allies are calling on us for more pork and beef we must raise more meat of other kinds that cannot be sent to them, but can be used to feed the people at home. And there is no fowl that can be raised that will equal the turkey in pounds of meat in the same growing time. They may be raised with but little more expense than any other fowl, for the turkey, being domesticated from the wild bird, naturally does well on the range after it is a few weeks old.

Why Turkeys Fail

Close confinement and improper feeding are the frequent causes of so many failures in the raising of turkeys. Where they are allowed to range where there are plenty of feed,

Big Bronze Gobbler

insects and water, there will be no overfeeding and the young birds will thrive where they would not if cooped up with little or no exercise.

Some of the best breeds are the bronze, Bourbon, reds and white Holland. The bronzes are the first that were domesticated and are the most popular and commonly known. They are by far the larger and, of course, more profitable.

There have been a great many articles in Orchard and Farm urging the ranchers to take up turkey raising as a side issue. You can do your bit in relieving the meat shortage if you will raise 500 or more turkeys on your range and waste land every year, besides adding a goodly amount to your income.

Best Feed for Poultry

There are many kinds of feed for young turkeys, but the following is the most practical and economical: Stale bread soaked in milk, not too wet, also plenty of water and once in a while some charcoal and grit. When they are a little older give them very fine grain with some green stuff such as chopped onions, alfalfa and lettuce. In the course of 4 or 5 weeks you can begin feeding larger grains, also mix in some chopped meats or ground bone.

In a short time you can have them ready for the range and you will be at little or no expense for feed after that, as they will forage the most of the time and you can easily teach them to come home every night to roost. But do not let them out early in the morning in cold or wet weather while they are young, but keep them in until it is warm and dry.

One of the largest turkey raisers in Sonoma county uses this method and when the wheat in his vicinity is cut he turns the stubb fields and [illegible] of turkeys just as he would a band of sheep.

[illegible] thus you can adopt [illegible] and raise more turkeys.

How to Mulch Garden Truck

MANY times instead of cultivating the ground the war gardener may effectively mulch it with various materials, and, to a large extent, obtain the same results as by cultivation.

The materials used for mulching are generally manure, straw, leaves, lawn clippings, or moss. Excelsior, sawdust and shavings are of less value, for the woody matter may be a detriment, especially when turned under year after year in large amounts.

If manure is used, it should be applied at least two to four inches thick, having the thickest part of the layer in the center of the row. It is advisable not to put the manure against the plant because of possible injury or discoloration. Leaves or straw should be used in the same way.

From tests carried on at different experiment stations, it has been found that by mulching asparagus, rhubarb, cabbage, tomatoes, beans, cucumbers, celery and potatoes, the yields have been greatly increased; diseases have been less prevalent; the vegetables have been larger; and in some cases the quality of the product has been much improved. It has been found advisable, however, not to mulch lettuce, radishes, spinach and a few other quick maturing crops because of the short time before the crop is harvested.

When to Irrigate Corn

THE time to irrigate will depend entirely upon season and locality. Moisture enough should be in the soil to start the crop and keep it growing. If such moisture comes from rains it will not be necessary to irrigate in the early stages of growth. If rains do not supply the early moisture, it is necessary to irrigate in order to get water into the soil.

Corn does not use a heavy amount of soil water until about the time it commences to silk and shoot. So that if there is enough water in the soil to keep the crop growing with fair vigor up until this time, there is no necessity of irrigating. If, however, the soil gets dry enough so that the crop wilts in the daytime or the leaves roll in the daytime, the crop should be irrigated.

To irrigate requires, first, preparation of the land by a single shovel plow, or a furrow opener. Furrows are made in the center of the space between the rows of corn. Irrigation is accomplished by running small streams of water down the furrows until the soil has been properly wetted.

To summarize, then, in the irrigation of corn, water enough should be applied to keep it growing. The most critical time for the supply of extra water is just at the beginning of the shooting and tasseling period. Irrigation should be given at this period if it is ever given.

Until the corn gets large enough to cover the ground, irrigation should be followed by cultivation, just as quickly after irrigation as the soil may be worked.—Alvin Kezer.

Hogs can be kept from rooting by giving them charcoal or pulverized soft coal and salt. It is a much better way than putting rings through their noses.

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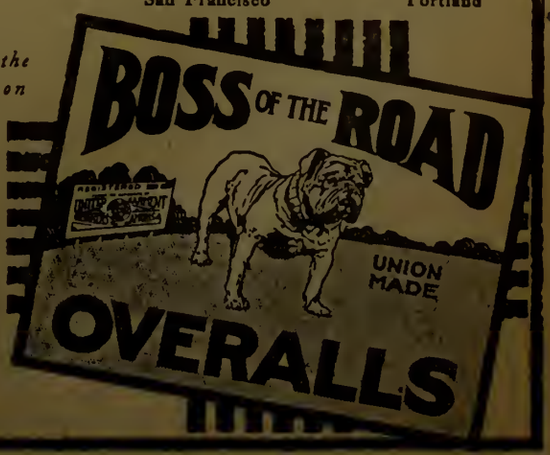


Autos Save Talk

WHEN the writer used to travel all over the State he used to marvel at the amount of time required to pass the time of day when two farmers met. One time for example, when in a machine with a friend, we met an acquaintance in a wagon who, on being asked how things were, said he was rushed to death, he was so behind in his work and was at that time hurrying for all he was worth back from town, and we then spent fully half an hour talking about nothing in particular.

In somewhat similar fashion my nearest neighbor tells me that it has taken him three hours to drive four miles to town back in Missouri, for each neighbor he met had to stop and hear and tell all the news and everything else on his mind.

Now, when one man meets another, both driving machines, they wave at one another and let it go at that. There is none of the old waste of time that used to occur when two buggies met. So, you may praise the auto all you want as a saver of time, feed and trouble, but do not forget, as one of its advantages, the immense saving in conversation that it has made.—W.

Save Barnyard Liquid

DOWN in the Redondo district is a dairy which furnishes a splendid example of barnyard liquid conservation. This dairy has cement-floored barns. The floors slope gradually toward the rear of the buildings to provide good drainage. One stable is connected with the other by a concrete conduit which taps the concrete ditch back of each string of dairy cows in the stanchions. Another conduit taps the stable conduits and draws off all the liquids into a big cesspool in one corner of the barn lot. The conduit is about fifteen inches wide and eight inches deep. It was constructed at no great expense.

After the barn caretakers remove all of the solid manure from the diary barns they take a hose and begin washing off the cement floors and rinsing out the manure gutters. This matter drains off into the cesspool, and every few days it is pumped from the cesspool into a galvanized iron tank on a wagon. In this way it is conveyed to the fields, where it is distributed over the soil. The application of liquid fertilizer of this sort to fields where alfalfa is produced for dairy herds has resulted in a material increase in the tonnage of hay grown for each cutting.

It is customary to work coarse stable manure into the soil during the fall months while the soil is to some extent unproductive. This gives the manure an opportunity to rot before the land is stirred up again, but this system does not hold good in Southern California except in cases where one crop a year is grown.

From twenty to thirty tons of manure per acre is generally considered to be about the right amount for one treatment. That allows a pound of manure for each square foot of soil.

Humus can be added to the soil by growing crops of legumes, such as beans, peas and vetch. These crops gather nitrogen from the air and store it at their roots. When the crops are plowed under the nitrogen becomes fixed in the soil and is then available for the production of new crops. This method of fertilizing ground is recommended between regular cropping periods. It is widely practiced by orchardists who grow nitrogenous crops in the middle between their trees to keep the weeds down and provide the ground with an annual soil tonic.—John M. Sherman, Pomona, Cal.

Early moulting hens are almost sure to be poor layers at two years. Better cull them out as soon as they are discovered.

Problem of Unimproved Land

A YOUNG man on a salary recently wrote, asking advice regarding ten acres of unimproved hogwallow land in Tulare County, which he purchased five years ago with the expectation of planting it to oranges. He says he was told it could be leveled for $15 per acre, but two years ago the best bid he could get was $30 per acre and the bidder would only work when no other jobs were available. The owner cannot well move on until the place is improved and earning something. He wonders if he could get it improved and make enough from intercrops to amount to anything, and asks what is best to do. This advice is given without investigating the land itself:

Unless the location is exceptionally favorable for frost freedom, I would advise other crops besides oranges. Thompson's seedless or Emperor grapes will bring in a fair crop the third year, or much quicker than trees, and are excellently suited to the locality. The former is a safe bet for high prices, the latter variety a good gamble for higher prices, but still a gamble.

Olives or deciduous trees might do nicely, but would be longer in coming into bearing and intercrops are not much worth depending upon, unless the owner is working the place or unless a good man is hired on a salary, and ten acres is too small a place to justify hiring a man that way. Also, $30 an acre is as low as can be hoped for in a good job of leveling hogwallow. It depends upon the nature of the individual piece and there is always the chance of hardpan greatly increasing the cost and difficulty of leveling.

There would seem to be only three ways of doing: Either move on the place yourself, putting up a cottage and sinking a house well for the start and paying expenses by working for neighbors, work being abundant now. Or get the land leveled well, put in pumping plant and hire the place cared for on contract, so much per acre, until the place is producing, and then moving on yourself. Or sell the land and with the money move on a partly improved and producing ranch on a thin, strong shoestring.

Since ten acres is too small a ranch to fool with, unless intensively cultivated, this latter plan would seem best. Also it is very unsatisfactory to try to get a place improved when the owner is not on the land. The present is a poor time to sell, but a good time to buy and a good time to start farming, provided a man can get land producing without delay.

Buying Liberty bonds would seem more patriotic than leveling land which would not produce crops for three or four years at the earliest. So, under the conditions, the wisest thing would seem to be to put the land on the shelf till after the war, or try to sell it and use the money to start farming a larger place on lease or on shoestring purchase. This advice, with modifications, can be given to owners of nearly all small, unimproved places.—D. J. Whitney, R. 1, Exeter, Cal.

One of the most serious losses to the poultry industry of late years has been the mortality of hens and broods of little chickens on highways where there is considerable motor traffic. This loss is estimated to be greater than the depredations by hawks and with the steady increase in the number of motor cars it is now an important factor in the food situation.

When soft-shelled eggs appear it is evident that the hens are not getting enough shell-making material. Broken shells or, better yet, finely ground oyster shell mixed with the soft feed will remedy the trouble.

See Phonograph Offer Page 19.—Adv.

My System in Beekeeping

III—Producing and Marketing Honey

By C. D. Stuart.

In this new series of articles Mr. Stuart, who is a well-known agriculturist of Los Gatos, Cal., will tell of his experience as a beekeeper and will also give the readers of Orchard and Farm some valuable hints of the care of bees and cost of keeping them.

THE two main branches of the bee game are producing and selling. Our first year's experience is noteworthy chiefly for what we failed to do in the way of honey production, and why we failed.

Next in importance to a good strain of bees is a location that will supply nectar for their pasturage and for surplus honey, in commercial quantities, as well. Such a pasture the vicinity of Los Gatos does not supply, although it abounds in honey-producing flora. The few gallons that comprised our first extracting proved to be a dark honey, containing eucalyptus, horehound and some manzanita. Later extractings were lighter in color, the main crop being gathered from the tollon, or Christmas berry tree, in June. Mixed with this were the flavors of ceanothus, poison oak, bay, wild blackberry and locust, but there is not sufficient pasturage of any one flower definitely to determine from the color and flavor the source of the nectar, for, in addition to the wild flowers, there are myriads of cultivated flowers and citrus trees in private gardens, all combining to give the honey an indefinable, woodsey flavor.

Bees Worked Overtime

Then, too, bees like humans, cannot successfully do two things at one time, and as our apiary was run the first season primarily for increase in colonies, rather than for surplus honey, this obliged the bees to spend their days (and nights, too, the books say) in drawing comb and rearing brood to fill the new hives, which uses up honey as fast as brought into the hive and leaves nothing to be stored.

The original 18 colonies were purchased in eight-frame hives containing a total of 144 frames, mostly home-made. These frames were filled with irregular combs and full of holes, even the factory-made frames, that chanced to be in the lot, being unwired and the combs old and broken. So the first job for the bees was to refurnish their own hives with new combs on new, properly-wired frames. After that they were commissioned to build more combs and stock them with brood and stores for other hives and queen-rearing nuclei. Our records show a total of 55 combs of brood and 25 combs of honey removed to form new colonies, which, with the 144 frames for their own hives, make a total of 224 combs built by the 18 original colonies.

It is fair to assume that if the time and strength required for the bees to produce 224 frames of brood and honey, at an average of say 5 pounds to the frame (a low average) we should have had 1220 pounds, or nearly 102 gallons, and counting 12 pounds to the gallon, more honey than was actually taken from the original 18 colonies.

The Bees Objected

Coupled with scant pasturage was our inexperience in the manipulation of the bees. Perhaps we "worked" them too hard. At any rate, they objected to storing honey upstairs—the super. Instead they would for the most part either pack the brood nest full, crowding the queen and brood on to one or two frames in the middle, or the colonies would swarm just as they were in prime condition to lay up surplus honey.

Finally, in despair, we adopted the plan of taking honey wherever we could find it ripened and sealed in the outer combs of the brood chamber, and replacing those combs with full sheets of foundation. In this manner we secured a surplus of 32 frames totaling 160 pounds, or about 14 gallons of extracted, and 26 sections of comb honey from our miscellaneous pasturage. Another two gallons of extracted and 10 sections we gave to our friends and used on our own table and for cooking purposes.

The amount of our crop was arrived at roughly, by keeping a memorandum of the number of frames of honey removed from each hive, and estimating them at 5 pounds each.

A Valuable Experience

Strict accountancy would demand that honey retained for home use be charged as a sale at the sale price we should have received for it in the open market, just as though we had sold it to a neighbor in place of to ourselves. Just as the general farmer who reckons his own living in milk, butter, eggs and vegetables as a matter of course, should regard such commodities as a part of his income.

From the drop of nectar in the heart of a flower, to the sweetening that finds its way into a honey cake, lies a whole season's effort for both bee and man. After the former had done their part, it still required 24 hours of labor to harvest and prepare the honey for market; or, computed in terms of money at 30 cents an hour $7.20 in labor. That amount of operating expense on $14.55 in honey is not excessively profitable, but it must not be overlooked that we had a valuable experience.

Many able men have failed to attain the standard of success set by modern ideals of wealth, owing to the lack of that elusive quality of mind termed "good salesmanship," and particularly is this true of the average apiculturist, as honey and its food values are so little known. In marketing a crop of honey that runs into one or more tons, the apiarist far from a central market must depend on commission merchants, and in order to check their reliability, it is necessary to study the market reports, or even to make a trip to the marketing center, the cost of which is often repaid in better prices. But in marketing small crops a local trade can usually be built up to handle it.

What Advertising Did

Several quarts of our first extracting stood on the shelves of the local grocer until it became candied. No one would buy it. Customers came and looked and went away, convinced of its heavy adulteration with some other substance, they could not say just what, notwithstanding the assurances on the attractive label. How doth the busy little ad. improve each shining hour! In response to a single insertion the same customers later paid 30 cents a quart at our door for honey from the self-same hives, convinced of its purity; for couldn't they see with their own eyes the hives stands in our yard? We even took back the jars of honey consigned to the grocer and liquefied it to meet the demand.

From that brief experience, we venture the opinion that no publicity method can rival an attractive white hive conspicuously placed somewhere on one's premises, for the rapid disposition of a small crop. It is an automatic sign—fascinating, mysterious. With it a "Honey for Sale" sign is superfluous, for those passers-by who have not already discovered the secret of the queer little house soon discover by personal investigation the contents, and in many instances it required a substantial quantity of honey to restore amity and friendship in the community. But a

[illegible] the line of advertising, [illegible]matic gifts were followed [illegible] delivery orders for more [illegible] "good pure honey" from [illegible] who had learned first hand, the [illegible]on of the honey bee to the com[illegible]cial product of the hive.

By the pursuance of such methods [illegible]ers will increase in proportion [illegible]ir general knowledge of the uses [illegible]ney other than as a dressing for [illegible] waffles and flapjacks.

Recipe With Each Purchase

As a means of further disseminating such knowledge, we adopted the rule of enclosing with each purchase of honey a recipe calling for its use. Later we enclosed lunch menus that completely eliminated sugar by using honey in its place. The honey-lunch beside being an education in the use of honey, is not only delicious but possesses the charm of novelty.

Another means of arousing interest in the use of honey is to ask for it when dining in local or other public restaurants, or by requesting of the bakers cakes and cookies sweetened with honey. Indeed, we have rarely failed to arouse interest in our wares. Our difficulty lay in our failure to supply from our own hives the demand after it had been created.

One baker wanted a few cases for macaroons; another needed honey for spice cakes; a third made a specialty of animal cookies that required honey for their proper preservation; a storekeeper disposed of a few cases each year by retailing it in packages put up by himself; and a large biscuit company used many cases annually for cakes and cookies that are put up in cartons and must be kept fresh an indefinite time.

To supply these customers required over 8 tons of honey, which was secured from a large honey-producer who had paid but small attention to the marketing of his crop, merely selling to the commission man who offered the highest price.

Since sales cannot be made unless one can deliver the goods, we naturally conclude that with all due respect to the art of "salesmanship" the producing end of the bee game is the more profitable.

(To be continued)

Bigger Fertilizer Bags

TWENTY-ONE million yards of burlap, valued at $4,000,000, could be saved annually if all fertilizers were shipped in 200-pound bags. Burlap is now growing scarce because of its increased use in trench warfare and food shipments and because of reduced importations. Pointing out that the burlap situation is steadily growing worse, the United States Department of Agriculture suggests that fertilizers be shipped in 200-pound bags.

Not only are burlap bags scarce, but the jute from which they are made is imported from India, and the shortage of ships has materially interfered with the supply. The necessity of furnishing the army with bags for trench use will further deplete the available supply.

A severe shortage of burlap would seriously handicap the movement of fertilizers to the farm, since the need of food containers would receive first consideration. It is, therefore, considered necessary that the use of burlap for carrying fertilizers should be cut to the greatest possible extent.

Knowing these facts, every patriotic farmer will gladly co-operate by handling the larger bags.

Another way in which farmers can help save burlap is by marketing any second-hand bags they may have on hand. Dealers are offering from 6 to 15 cents for these second-hand bags, depending upon size and condition. Why not sell any spare burlap bags now, while the need is so great?

Know your garden and make it produce a balanced ration.

See Phonograph Offer Page 19.—Adv.

What Drought Did

THE foxy California farmer will put in a fall crop of potatoes, as prices are bound to go beyond the present figures before next spring. According to the government estimate there will be only about a half crop of potatoes in California this season, or 8,314,000 bushels as against 15,225,000 last year. A month or two ago it looked as though there were going to be plenty of tubers, but a careful investigation of the acreage and crop conditions proved the reverse to be true. Our home ranchers need not fear Eastern competition, for there will be a 30 per cent falling off in the potato crop beyond the Mississippi.

California wheat shows a big falling off from the figures of last year. Present government estimate is 6,378,000 bushels against 7,425,000 bushels in 1917.

The trouble with wheat has not been decreased acreage. In fact there was a larger area sown than in the previous season, but the drought cut down the yield as low as 50 per cent in some of the big grain-growing sections and in not a few places the harvest was nil.

Must Practice Dry Farming

It is very deplorable in these times of increased demand for grain that conditions should have been so averse, and it shows that the California rancher will have to learn and practice the best dry farming methods instead of depending so much upon rains that don't come.

Barley has been our best bet for many years. California showed up wonderfully last year with this valuable grain, but the government reports this season show that we shall have for consumption only 32,914,000 bushels as against 39,150,000 bushels last year. Here again dry farming would have helped immensely, but, alas, it was not practiced!

In season and out of season Orchard and Farm has been preaching dry farming for grain, and has been recommending the Campbell system and sending out the Nebraska man's literature on the subject, but it takes about three years to get anything like that started among our ranchers. Perhaps next year they will study up and put into practice the Campbell system or some other good system and will get good crops even in a dry year.

Hay naturally has fallen down with grain. The estimate is for 4,740,000 tons as against 4,819,000 tons in 1917. There has been a little more wild hay cut this season than last, as the stockmen had been advised by some of their leading authorities to make a better use of the natural crop in the foothills and elsewhere.

Fruit Crops Fairly Good

As to fruits we are getting fairly good crops all around. There will be a better crop of figs than usual, owing to heavy new acreage in the San Joaquin valley, where the percentage is practically 100 all around. Here is a fruit that the orchardist cannot afford to neglect. It would be a good thing for some of our citrus growers who have a little spare land to put it into figs. A crop failure of figs never has been known in California, no matter how dry the season.

Oranges are showing up well, but not quite so well as was indicated by the heavy spring blossoming. Estimates run from 85 to 90 per cent for oranges and lemons.

Apricots, prunes and peaches would show a distinct falling off if it were not for the largely increased acreage, particularly of apricots. The drought greatly affected prunes in some districts.

Grapes are a full crop save in non-irrigated sections

Keep the lambs growing. A stunted lamb never makes a good sheep.

"I got the sweetest hat today. And, my dear, of course, I didn't really need it, but—"

* * * *

"What if it is only a few blocks? Here, taxi!"

* * * *

"I know I'd feel a lot better if I ate less, but I simply must have a big order of—"

* * * *

Save the Thoughtless Dollars

Over there in the Picardy mud, pock-marked with significant craters and "plum-caked" with unspeakable things that once were men, our soldiers can't hear all that some of us are saying. Good that they can't, isn't it? It wouldn't make it any easier to stand firm against those blood-crazed, grey hordes who come on wave after wave because they believe their Kaiser is "God's anointed shepherd of the German people."

* * * *

It isn't that we Americans are a selfish people. We have simply been thoughtless.

Money is needed to win this war—let's give it. So far, we have been asked only to lend—to lend at a good round 4% interest. Turn your THOUGHTLESS dollars into War Savings Stamps.

NATIONAL WAR SAVINGS COMMITTEE, WASHINGTON

W.S.S.

WAR SAVINGS STAMPS ISSUED BY THE UNITED STATES GOVERNMENT

Contributed through Division of Advertising

United States Gov't. Comm. on Public Information

For the Farm Woman

Edited by Ruth Roberts

"ARE these your children, madam, or is it just a little picnic?" asked an interested and curious old gentleman of a fellow traveler.

The flushed and anxious lady glanced up for a moment, from her many charges to answer—"They are my children, sir, and it's no picnic."

Speaking of picnics have you been on one this summer? Or any other out of door party that appeals to your fancy, that is the thing to have? Everyone must have relaxation of a sort that appeals to him, if it is wholesome and healthy.

You all remember the proverbial waywardness of the minister's son in former times, and the reason of course was the tight rein kept upon the boy until he reached manhood. Take away simple pleasures and soon all pleasures and so-called pleasures become doubly valuable.

Refuse your daughter the right to and criticize her for a simple flirtation with a neighbor's boy and you often pave the way for a love affair in secret with some undesirable man, ending in sorrow and unhappiness for all.

And just so with a boy. It is a sad sight to see the boys loafing on the street corners, a prey to every evil and that is not the right sort of freedom. Make your own home so attractive and help to plan the many excursions and parties that delight the young.

Then you will know where the boy is and take away the morbid desire for the things that he should not do and have.

So, while the government needs your largest crops and you need the money remember that all work and no play makes Jack a dull boy and dull boys fall into all sorts of mischief. So plan for yourself and the child some pleasures which you all can enjoy.

RUTH ROBERTS.

Potatoes Instead of Wheat

AN old king tested each cook before hiring by having him boil a potato. Even a good potato may be spoiled by a poor cook.

The following recipes, which have been thoroughly tested by the Food Administration, give several methods by which delicious potato dishes may be prepared:

Baked Potatoes

Select smooth, medium sized potatoes. Scrub with a small vegetable brush and bake in a hot over for about 40 minutes or until soft. Remove from the oven, break the skin slightly in order that the steam can escape, and serve as quickly as possible.

Boiled Potatoes

Select potatoes of uniform size. Wash clean and without paring or else paring off only the thinnest possible layer of skin, drop at once into cold water to keep from becoming black. Cook the potatoes in salted boiling water until soft, which can be easily determined by piercing with a fork. When the potatoes are done, drain immediately, shake till dry, sprinkle with a little added salt, and let stand uncovered in a hot place until serving time. If potatoes are boiled with their jackets on, cut a narrow band of skin from the center of each potato before boiling. This aids in removing the skin before the potato is eaten.

Lyonnaise Potatoes

Cook five minutes three tablespoons fat with one small onion cut in thin slices; add three cold boiled potatoes cut in one-fourth inch slices and sprinkled with salt and pepper; stir until well mixed with onion and fat; let stand until potato is brown underneath, fold like an omelet and turn on a hot platter.

Scalloped Potatoes

Wash, pare and slice potatoes into cold water. In greased dish place a layer of these potatoes, sprinkle with salt, dot over with one-half tablespoon fat. Repeat this until the baking dish is nearly filled, then add hot milk until it may be seen through the top layer. Bake one and a quarter hours in a moderate oven or place back of the stove and cook slowly. The milk should not boil. A little grated cheese may be sprinkled over each layer if desired.

Waldorf Potatoes

Cut cold boiled potatoes into cubes and mix one cup potatoes and one-half cup cream sauce, having previously added four tablespoons of grated cheese. Pour over potatoes and heat slowly without boiling.

Stewed Potatoes

Cut cold baked or boiled potatoes into dice, put into a stewpan with salt, a tiny bit of onion minced fine, and milk enough to half cover the potatoes. Set on the back of the stove and stew slowly, stirring with a fork occasionally until all the milk is taken up. Season with fat and pepper and serve.

Potato Salad

Cut cold boiled potatoes into half-inch cubes to make 1 quart. Chop fine, in a wooden bowl, 1 small, peeled onion, 1 tablespoonful of picalilli, 1 tabespoonful of capers, 6 branches of parsley, 8 olives and half a green pepper (sweet). Add 6 tablespoonfuls of olive oil, 3 tablespoonfuls of vinegar, and 1 teaspoonful of salt; mix all together thoroughly and pour over the prepared potato. Mix gently with a spoon and fork, cover and let stand in a cool place until ready to serve.

Corn Splits

Bake a thin cornbread. Before putting in the oven sprinkle with sugar. Allow it to cool, then split with a sharp knife and spread with currant jelly or orange marmalade. Cover; cut in squares and pile sandwich fashion on a plate. Serve as soon as made.

Hermits

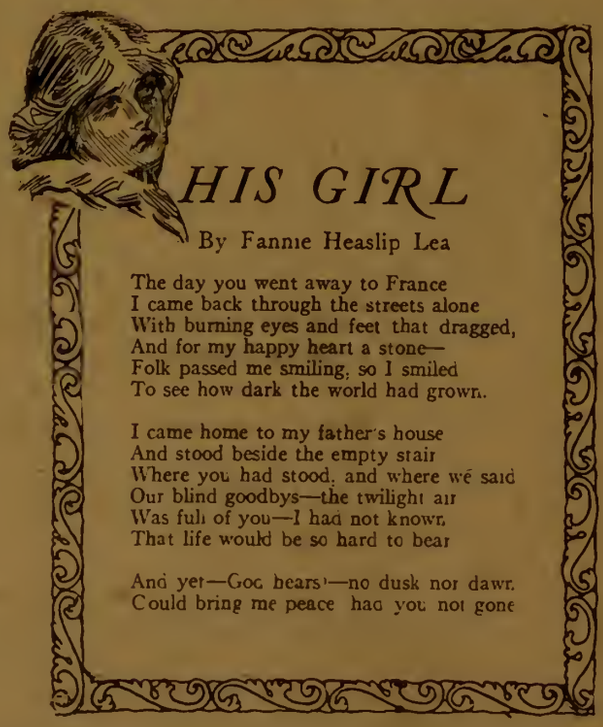
¼ cup fat.
3 tablespoons corn syrup.
2 tablespoons molasses.
1 egg.
¼ teaspoon salt.
1-3 cup chopped raisins.
1-3 cup chopped nuts.
1 teaspoon baking powder.
½ teaspoon cinnamon.
¼ teaspoon cloves.
Barley flour to roll.

Directions—Combine the ingredients as for cake. Roll thin. Shape with small cookie cutter and bake on tin sheet. For drop cakes use less flour.

For brownies substitute 2 squares of melted chocolate for the raisins in above recipe and flavor with vanilla instead of cinnamon.

Oatmeal Cookies

Two and one-half cupfuls of oat flakes, one cupful of sugar, two teaspoonfuls of melted butter, two eggs. Flavor with almond.



HIS GIRL

By Fannie Heaslip Lea

The day you went away to France
I came back through the streets alone
With burning eyes and feet that dragged,
And for my happy heart a stone—
Folk passed me smiling, so I smiled
To see how dark the world had grown.

I came home to my father's house
And stood beside the empty stair
Where you had stood, and where we said
Our blind goodbys—the twilight air
Was full of you—I had not known
That life would be so hard to bear

And yet—God hears!—no dusk nor dawn
Could bring me peace had you not gone

Texas Is Wheatless

THE State of Texas is voluntarily abstaining from the use of wheat flour. This action is to be for a period of 45 days and longer if necessary.

"This was not a hysterical movement," declares E. A. Peden, Federal Food Administrator, "but one which the people of Texas were anxious to undertake. I did not make the request. The offers came in unsolicited."

Gen. Pershing was notified of this voluntary action and he sent the following cablegram in reply:

"I assure you the American Expeditionary forces appreciate the sacrifices made by your great State toward winning the war. The United States will win through sacrifices of men, money, and comforts, and the troops already here will have the opportunity through the army publication, 'Stars and Stripes,' to know part of what the largest State in the Union is doing."

Texas grows three bushels of wheat per capita. California produces less than two and one-half bushels per capita.

Pinto Beans Are Good Food

SO many ranchers on this Coa[illegible] are raising pinto beans this ye[illegible] that it will be well for our hous[illegible] wives to learn just how they ar[illegible] cooked in Colorado, the home of t[illegible] pinto. After various tests it has bee[illegible] found that if the beans were cooke[illegible] in the water in which they had be[illegible] soaked over night, the finished prod[illegible] was darker and of a stronger flavor. To some persons this proved to be [illegible] desirable characteristic. It should [illegible] added that the darker color resulti[illegible] from the cooking is not in the le[illegible] objectionable.

After soaking for 12 hours it [illegible] found that the time required for b[illegible]ing until tender enough to mash ea[illegible] when pressed between the finger t[illegible] was as follows: Pinto beans, t[illegible] hours; navy beans, three hours; l[illegible] beans, one and one-half hours.

Pinto Bean Muffins.

Two eggs, well beaten, one cup col[illegible] boiled bean pulp, one-half cup m[illegible] one-third cup melted fat, one teaspo[illegible] salt, two cups flour (barley), two tea spoons baking powder.

Combine ingredients in order give[illegible] Bake muffins in greased muffin pan[illegible] for 20 or 25 minutes.

Served with a brown gravy, the[illegible] may be used as a main supper d[illegible] If served as a bread the addition of a tablespoon of molasses is desirable

Pinto Bean Loaf.

One pint cold beans, one egg, be[illegible]en, one cup bread crumbs, two table spoons tomato catsup, two teaspoon[illegible] salt, one or two tablespoons fine[illegible] minced onion.

Combine ingredients, shape into a loaf and bake for 25 minutes. A l[illegible] fat should be placed on the top of th[illegible] loaf. Baste with fat and water. Serv[illegible] with tomato sauce.

Other very satisfactory variatio[illegible] are as follows:

1. Combine with two cups of bean[illegible] two cups of grated cream cheese o[illegible] cottage cheese and one cup of brea[illegible] crumbs.

2. Combine two parts of beans, one of cooked rice, cornmeal or oatmeal

Pimentoes or finely shredded gree[illegible] peppers may be added to either of th[illegible] three types of bean loaf, allowi[illegible] from one to two tablespoons. The ad dition of beaten egg will help to bette[illegible] hold the bean loaf together. A toma[illegible] sauce is an especially acceptable add tion to the bean loaf.—Evelyn Jone[illegible]

A Few Good Recipes

These recipes that are printed b[illegible]low have many points in their fav[illegible] and I recommend them highly.

They are economical, easy to ma[illegible] and very good to taste.

I hope they will meet with y[illegible] approval.

Little Cakes for Patriots

If the children of the family are e[illegible]rolled with the -whcatless, rewar[illegible] them with a treat now and th[illegible] Little cakes mean much to li[illegible] people. Here are some inter[illegible] ones to be tried out:

Goober Cookies

1½ cups corn meal
1½ cups peanut flour
1 teaspoon salt.
2 teaspoons baking powder
¾ cup corn syrup.
1 cup raisins chopped. 2 egg[illegible]

Left-Over Whites of Eggs

Beat whites of eggs until stiff, [illegible] a little sugar and salt, and dro[illegible] spoonfuls into hot water or [illegible] Cook slightly, take up with sk[illegible] drain and place on pieces of [illegible] cake covered with jelly or fruit. [illegible] tops of eggs with small p[illegible] jelly

ORCHARD and FARM

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Mirandy on Babies

I RECKON dat babies is de curiousest nation of people dere is, an' de decitfulest. Yassum, dere ain't no guessin' a baby.

But de most peculiar peculiarity 'bout a baby is de effect dat hit has on de folks dat hit associates wid. Hit makes 'em, or ruins 'em. Hit always makes me laugh when I hears folks talk 'bout de way dey is gwine to mold deir chillun's characters. Hit's de chillun dat does de moldin' of de parients' character, an' a little, teenty, teenty baby can change a grown man or woman mo' in two days dan a grown man or woman can change a baby in twenty yeahs.

Yassum, you can always tell folks dat's got a baby, an' you don't have to look at de greasy spots in de middle of deir backs, neder. Dey's des got a chastened look, an' hit's sort of glorified look, too, lak dem Early Christian Martyrs whut had done suffered in well-doin', an' walkin' de colic.

Yassum, I done heard somebody say oncet dat a baby was a well-spring of joy in de house. I ain't a 'sputin dat, but one sholy is a steady job, becaze it keeps you on de jump from mawnin' till night, an' from night till mawnin', an' de funniest part of hit all is dat you des loves dat little bunch of trials and tribulations dat somehow has got you' heart des squeezed up in hit's little fat fists, so dat no matter how tired an' worn you is wid loss of sleep an' rest, you don't never think 'bout quittin' on de job.

Yassum, babies sholy am a gran' institution, an' I don't know whut we'd do widout 'em. Dey keeps us po' an' humble, an' makes us proud an' braggy. Dey wuks us to death, an' we are glad to slave our fingers to de bone for 'em. We wonder whut odder folks sees in deir runty, knock-kneed, measly offspring dat makes 'em think dey is worth raisin', an' when we looks at our own, dey looks as beautiful, an' wonderful, as sheriffs from de sky.

Yassum, nobody don't know what happiness is ontel dey is held deir own baby on deir breast. An' nobody don't know whut sorrow is ontel dey have turned away from de graveyard and left their little baby layin' out dere alone, cold in de snow.

Hit's I's knowed both.—Dorothy Dix.

Pen Sputterings

"Keep a pig," advises Hoover. We [illegible] to believe after a trip to town [illegible] that we are keeping several war pigs, egg pigs, shoe pigs [illegible]

Don't forget the war pie, ladies, [illegible] the top crust

[illegible] little Johnny is forced to [illegible] sacrifice—mother has [illegible] big for supper on [illegible]

[illegible] onion to spinach [illegible] a flavor

Strong Eyes Without Glasses

Perfect eyesight. Absolute eye comfort. Greater NERVE ENERGY, body efficiency and comfort by using MATTHES SYSTEM OF EYE CULTURE. If you suffer from headaches, eyestrain, weak eyes, burning lids, nausea; if your eyes trouble you in any way, this system will remedy it. If you wear glasses you can discard them and have such eye comfort as never before enjoyed. No drugs, operations, danger or difficulties with my system. Easily understood; inexpensive. Dr. W H. Matthes, O.D., Story Bld., Los Angeles

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I use and sell Pioneer Incubators and Brooders. There are no better machines made. Prices reasonable. Write for particulars.
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has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods everybearing with oil preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.
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Advertise on the Farmers' Market Space. Big results. Only 3 cents per word

To the People of California:

★ ★ ★

TO CLEAR up any confusion that may exist in the minds of housewives concerning food conservation, the following definite program of food saving is issued with the explanation that frequent changes are made necessary according to the needs of the Allies and our own people:

1. All kinds of staple foods, especially wheat, meats, fats and sugar should be most economically used. Use substitutes for these four commodities.

2. No food should be hoarded. Hoarding is the holding, contracting or arranging for food by any person in excess of his reasonable requirements for use or consumption by himself and dependents for a reasonable time. This does not refer to stocks of home-grown vegetables and home-canned or preserved fruits.

3. All householders who can entirely eliminate the use of wheat until the next harvest, about September 1st, should do so.

4. Householders who are obliged to use wheat should not use more than a total of 1½ pounds of wheat flour or prepared wheat, in any form, per person per week, including the wheat flour in Victory Bread, and including the wheat flour or prepared wheat in crackers, pastry, macaroni, breakfast and other foods.

5. Victory Bread is bread manufactured by bakers under the rules of the United States Food Administration. In estimating flour consumption, 1¾ pounds of Victory Bread may be considered equal to 1 pound of wheat flour.

6. In buying wheat flour an equal weight of other cereals as substitutes for wheat flour must be bought pound for pound. This is the 50-50 Rule. In buying mixed flours, the substitutes in them may be counted so that a smaller proportion of substitutes may be bought with these flours than with white flour. In buying graham and whole wheat flours (containing not less than 95% of the entire wheat) 6/10 pounds of substitutes shall be purchased with every pound of such flours.

7. Wheat flour substitutes are hominy, corn grits, cornmeal, corn flour, edible cornstarch, barley flour, rolled oats, oatmeal, rice, rice flour, buckwheat flour, potato flour, sweet potato flour, soya bean flour and feterita flour and meals.

8. Householders in towns and cities may not buy more than ⅛ of a barrel of flour or 2 pounds of sugar at any one time. Householders in rural districts may not buy more than ¼ of a barrel of flour or 5 pounds of sugar at any one time. In no event shall any purchaser have more than 30 days' supply of either on hand.

9. Householders should not use more than ¾ pounds of sugar per person per week.

10. In addition to the above, however, sugar may be used for home canning, and will be available to the householder for that purpose upon signing a certificate that such sugar is desired and will be used only for that purpose.

11. No wheat flour, or prepared wheat in any form, should be used for any purpose other than human consumption.

12. Meats of all kinds, particularly beef, should be most economically used, eliminating all waste.

13. Fresh milk and milk in evaporated and condensed form and cheese may be liberally used.

14. Butter may be used for normal consumption.

15. To save transportation local supplies should be grown and used.

U. S. FOOD ADMINISTRATION
FOR CALIFORNIA

June 26, 1918.

This space is contributed to the winning of the war by
A Schilling & Company
Manufacturers of Schilling's
Coffee, Tea, Baking-Powder, Spices, Extracts, Soda and Cream of Tartar
San Francisco

Evils of the Single Tax

(Continued From Page 5)

these lands give more employment to the laborer, the man who is seeking such employment, and whom Mr. North describes as "those who are engaged in useful occupation?"

Mr. North takes exception to our statement in the last issue of the Orchard and Farm that "Single Tax would throw the burden of all public expense on land owners." He states that it would do nothing of the kind, and then quotes from the bill itself which provides that the burden will be placed upon the "VALUE OF LAND." It seems to us that this is a distinction without a difference. We have always paid taxes upon the assessed valuation of property, whether it be real or personal, and the result is the same. It makes no difference to the farmers of California whether they pay taxes upon the land or upon the value of the land, the assessment roll is the sole arbiter of the matter.

A Twist in Values

Again, our opponent states that the "farmer's value of land is insignificant," and that his great value lies in his houses, barns, crops, vineyards, etc., etc. I submit that this is not the fact. Any one familiar with the situation in California will tell you that the farmer's value is in his land, and that his improvements are almost invariably insignificant. The California farmer usually has a small house and a large barn, and of such little value that they are hardly taken into consideration in making an appraisement of the property. Hence the untaxation of improvements would not benefit the farmer, but would prove to be of tremendous advantage to the owners of the sky-scrapers in the large cities.

But let us return to the proposed constitutional amendment which we will be called upon to oppose at the next election. This ball provides that "On and after January 1, 1919, all public revenues, State, county, municipal and district, shall be raised by taxation of the value of land irrespective of improvements thereon."

Corporations Would Escape

Let us for a moment consider our present sources of income with which we meet the expenses of State, county and municipal expense. First of all, all land today is relieved of paying any taxes to support the State government. This expense is borne entirely by the taxation upon the land, improvements, and all personal property, including stocks, bonds and all else of value, including non-operative property of the corporations. But if this amendment should go into effect the large corporations would immediately cease to maintain the State government. The great railroads and street car lines would only pay taxes upon their rights of way and such land as may be held by them. Their rolling stock would be exempted. The great mills, factories and tremendous buildings in our cities owned by the wealthy classes would be exempted. In San Francisco alone hundreds of millions of dollars of improvements would go scot free.

Then you ask who would pay the expense? There would be but a SINGLE TAX, and that upon the land. The taxation would then be distributed to every acre of land throughout California and each acre would be forced to bear its proportional amount according to its assessed valuation. The answer is simple: We cannot relieve from taxation one-half of the property value of California without doubling the tax upon the remaining portion, for the expenses of the State and municipal government will go on just the same and will continue to increase as years go by.

Would Ruin the Farmers

Would doubling the tax create a demand for the land? Would this cause people to flock to California where the taxation is prohibitive? Our farmers are groaning under the yoke, and we submit that a 100 per cent increase in taxation would cause financial ruin to thousands of farmers throughout the State.

Where has Single Tax been tried, and its great "blessings" realized. Certainly my article in the July issue of Orchard and Farm clearly showed the bitter experience of Vancouver. This disastrous experience of Vancouver shows how Single Tax works. It is real practical results that our farmers want, not theories, NOT results that end in disaster.

In the State of Oregon a few years ago the Single Taxers gained their point until the voters of that State realized the truth. Thereupon, by special election the next year it was repealed.

And now in California, when our minds are full of the grave questions before us, these same Single Taxers hope to slide their theories on to the voters of our fair State.

"Where the Lion's Share Goes"

I cannot help but comment on Luke North's statement of where the lion's share goes. By his own article he claims the vast stream of wealth goes mainly to a "few rich land owners." These "few rich land owners" must therefore be those who are opposing Single Tax.

This is an insult not only to our intelligence, but to our government, to presume that through the efforts of "a few rich land owners," the Single Tax measure could be defeated on three different occasions in this State.

The words, "few land owners and speculators" are the terms used by every reformer and radical, and their real meaning should not be lost by the voter who is a true citizen and who considers that he is a part of the government under which he lives.

The American's Creed

I BELIEVE in the United States of America as a government of the people, by the people, for the people, whose just powers are derived from the consent of the governed, a democracy in a republic; a sovereign Nation of many sovereign States; a perfect Union, one and inseparable, established upon those principles of freedom, equality, justice, and humanity for which American patriots sacrificed their lives and fortunes.

I therefore believe it is my duty to my country to love it, to support its Constitution, to obey its laws, to respect its flag and to defend it against all enemies.

Candling Eggs

SEVERAL years ago when the price of eggs was based on candled extras and case counts candling was considered a graft. But with the advent of the cold storage system it was very quickly discovered that it was an absolute necessity to candle all eggs before putting them into storage and also as soon as they are taken out of storage, before putting them on the market.

The arrangement for candling eggs at home can be made a very simple affair as follows: Make a dark room in one corner of your shed where you can run an electric light wire. Procure a gallon tin can or bucket, cut a hole in the bottom that will be large enough to hold the light socket and leave the other end open. Place this so it will hang downward just above the center of your egg case.

Have a bench made that will hold at least four cases, and just as wide as a case is long and when ready to begin candling place the full case of eggs directly under the light shining from the open end of your can. Cut two holes in the side of the can about one inch apart and about the size of a 50 cent piece.

Take two eggs in each hand—one between the first two fingers and the thumb and the other in the palm of the hand. Place the first two eggs to the light with the large end up. It is very necessary to place the large end to the light as the air cells will not show from the small end nor will the blood clots and other defects show as plainly as when the egg is turned slowly to the light from the large end.

When you have tested the first two eggs in this manner simply roll the eggs in your hand as you would two large marbles.

If an egg is strictly fresh the air cell is scarcely noticeable and all you find is a blood clot or a grass egg. These should never be put in with your extras, if you do you will find you cannot build up a reputation for extra quality eggs.

Grass eggs will, when held before the light, show a greenish color and when broken cast off a very offensive odor and many a cake has been entirely spoiled when they have been used.

In candling your eggs for the market it would be an excellent plan to have your scales handy and weigh all small eggs that you might think would be graded as pullet eggs and pack them separately.

All dirty eggs should be washed or packed in separate cases and sold as such.

By doing this you will be able to find a market for your extras at a price far in excess of the case count. And it will not take much time, as an expert egg candler will candle 60 or more cases a day.

Hens Keep Down Flies

THE other day the writer visited a place rented by him the preceding year and found the stable alive with flies in spite of the fact that real warm weather was only beginning. The previous year, although there were a number of flies around, they were nothing like that, and the writer attributes it to keeping a few chickens and to the fact that none are kept this year. Chickens like to scratch in barnyard manure for one thing, and they move it round so much that grubs cannot grow up in it comfortably; also it dries faster than it would when undisturbed. Likewise the grubs, or fly maggots, would nearly all be eaten by the fowls before becoming flies. Anyhow the flies this year are terrible and were not half so bad last year and the chickens quite probably had a good deal to do with it.—D. J. W., Exeter, Cal.

Food wasted is food lost and no money can replace it.

See Phonograph Offer Page 19—Adv.

Machine-Made Cement Pipe

CEMENT pipe for irrigation lines has become quite common in some parts of Arizona. In the past the pipe has been made and tamped by hand using collapsible metal forms.

In recent years successful machines have been developed for doing the work better and cheaper than can be done by hand. One of these machines is now in service at Continental on the old Canoa Land Grant in Pima county, where a large pipe contract is nearly completed. About [illegible] miles of pipe has been made and two-thirds of it has been laid. The sizes vary from 8 to 20 inches in diameter, there being one continuous line two and a half miles long of the largest size. Much of the pipe is under considerable pressure, the maximum being twenty-one feet.

The cement pipe lines conserve the water. The four pumping plants at Continental will serve twice as many acres as would be possible if the distribution was in earth ditches. The pipe lines with gates and valves give easy control over the water so that it can be divided and distributed in the most efficient manner. Cement pipe does away with the bugbear of ditch cleaning, for weeds, algae, Bermuda and Johnson grass cannot grow where there is no light. There is a great saving of land, and the nuisance of gophers is eliminated.

It is hoped and expected that the demand for cement pipe will become so strong in Arizona as to keep the machine now in Continental continuously busy. The machine should be installed permanently at Tucson, Casa Grande, or Phoenix, or Yuma. Otherwise the machine will probably be shipped to California when the present contract is finished.—G. P. Smith, Irrigation Engineer.

When Washing the Auto

THE luster of the body finish will soon be destroyed by the careless use of soap or by hosing off the dust and mud with great force. Care and system in washing will keep the auto looking well for a long time, and in this time of conservation of every resource the care of the car is a good place to begin.

Cold water flowed over the body while it is still hot, or hot water on any part that has a high finish will destroy the luster. Mud should not be allowed to dry on the car if possible to prevent it, but in case it does a gentle stream of water flowed over it when cool will soften it and wash it off. A sponge should never be used on a car until all the dirt possible has been loosened up and washed off by running water.

When the dust and grit have been washed off as thoroughly as possible then use a soft sponge and sop gently over the whole surface water from a pail in which some good auto soap has been dissolved. This will remove any oily or sticky dirt. Wash off with a gentle stream from hose and go over again with the sponge and soap water. Wash off again, then take as all water possible with the sponge and wipe dry with a chamois.

Doing Odd Jobs

WHY do you recommend tractors so highly? Is it because you have so many ads of them in your paper? I don't want a tractor. If I canned my horses how would I get my odd jobs done?—T. S., San Fernando, Cal.

Our advertising has nothing to do with our recommendation of tractors. You will search in vain in Orchard and Farm for any sort of write-up of tractors or anything else. As for odd jobs, did you read O. H. Stone's article, published last September in this paper on "A Hundred Uses for the Tractor?" Odd jobs engage that. Beside you don't have to feed your horses go just because you have a machine.

Ear Disease of Rabbits

PLEASE tell me what to do for our rabbits. They have an infectious disease among them which breaks out at intervals affecting their ears and making scabs. The ears seem to itch as the rabbits are shaking them and scratching them a good deal of the time. Unless we keep applying iodine indefinitely the disease comes back again.—M. M. Whetstone, Victorville, Cal.

Reply by C. E. Sherman

The disease that is afflicting your rabbits is commonly known as ear canker and is caused by a parasite which gets in the ear and eats away the inner lining of the ear. These parasites and the refuse which they throw off is the cause of the itching which you notice in the animal's continuous scratching.

To affect a cure, first remove all of the scab and refuse from within the ear and then apply a few drops of olive oil and a pinch of sulphur. There are many prepared remedies on the market which are excellent. I am mailing you circular of diseases and treatment.

Rabbit Money for Boys

IF parents would undertake now to plan something to interest the boys from ten to fifteen years of age, they could not select anything more pleasing to the youngsters than to give them capital enough to enable them to purchase two good breeding does and start them in business in a regular way, by furnishing in advance money to get the stock and buy food until such time as they can begin to repay it from the proceeds of their business.

One business man in comfortable circumstances made an investment for his two young boys about 10 and 12 years old. The business was charged with the cost of stock equipment and food until such time as the young stock began to provide funds enough to pay expenses.

As soon as a litter of young rabbits was old enough to market their local butcher bought all they had to sell as fast as they could raise them. They also charged up against the family table any meat they provided for it in the way of rabbits.

In less than a year they had paid back what money was advanced besides increasing the number of breeding does, some young ones were exchanged for a good utility buck and with two of their own raising they had quite a plant with some money in the bank.

This father stated that the experiment had delighted him, especially as the boys had made good and at that time, more than a year after they started, they were still deeply interested in the venture.

Now that it seems almost necessary for families themselves to consider this method of providing fresh meat for the table it would be a good plan to talk it over and this work need not necessarily be confined to the boys.

Where there are girls and boys in the family a partnership can be formed, each one doing the part of the work most suitable.

Rabbits are the cleanest and most fastidious of animals and become great pets when treated with kindness. In Los Angeles there are many women raising rabbits both for their own table and commercially.

Rabbits have been increasing in price lately but fair utility stock can be had very reasonable as yet.

Enlist as a Farm Soldier!

Send Your Name and Address to This Office.

SEVEN hundred and fifty thousand new farm workers are needed in this country to increase the war emergency food supply.

Do you need work? Will you be willing to help in this grand movement by which our war crops will be cultivated and harvested?

What are you doing now?

Are you one of that class that is loafing about the poolrooms holding up the store fronts and patronizing the free lunch counters?

Let us hope that you are not. But if you are here is a way to redeem yourself and show that you are a man:

Enroll on the Orchard and Farm list of men who are willing to devote themselves to public service by work upon the farms.

Or it may be that you are of that ever-industrious class who want to help win the war and don't exactly know how to do it. Orchard and Farm presents a way: Enroll as a farm worker.

Perhaps you wanted to enlist in the army or navy and were not accepted, but are able to do your day's work in orchard or field. Enroll!

Or it may be that you were formerly engaged in agriculture and are now willing to do something to help out crop production temporarily. Enroll!

Sign the following and send it to Orchard and Farm, Examiner Building, Los Angeles, immediately:

I wish to enlist in the army of farm laborers for the present war emergency. I shall expect wages at the rate of $..... a day during the period of my employment which will be ..... months.

Name .....

Address .....

A Fertilizer Talk

ALFALFA, besides its other wonderful qualities, is probably the best fertilizing, or soil improving plant commonly grown in the West. At the same time fertilizer applied to it will pay big dividends. This is particularly true in years like these, when alfalfa hay, loose in the field, sells for from $12 to $16 a ton, or so. A man need not feel the cost of some commercial fertilizer, if he gets a ton, or maybe three tons, per acre more on account of the application of some plant food. Although the first two cuttings are likely to be all right on an ordinary stand of alfalfa, there is no use in having later cuttings as small as they usually are.

A neighbor asked me the other evening whether I would advise gypsum or ground limestone most strongly for his alfalfa. He has a beautiful patch, but like a wise man, wants it to produce every pound of hay that it can. I said that the wisest thing was to try some of both so that experience would show which was the better, but that probably gypsum would give better financial returns and it might be wiser to have gypsum as the main application and ground limestone (carbonate of lime) as an experiment. Something can be said on both sides, and here it is.

Lime is the main element secured in both substances and there is considerably more lime in carbonate of lime than in gypsum. Lime also is a most fruitful source of soil fertility and is highly desirable. Therefore the purchase of carbonate of lime would actually give more permanent soil strength than would gypsum. As ground limestone is at present cheaper than gypsum, the purchaser would benefit in that way also. Quick lime would be undesirable. Hydrate of lime, occasionally called agricultural lime, would be very satisfactory.

Gypsum is a compound of sulphuric acid and lime, with some water added to hold the lime and sulphur together, lime and sulphur therefore being the two elements of value secured. However, there is not as much lime in a ton of gypsum, by a great deal as in other lime compounds.

Gypsum, though, has special advantages. One of these is the sulphuric acid combined with the lime. That is a fine soil stimulant. Next is the fact that gypsum more than any other known substance, will stimulate the nitrogen bacteria on the roots of alfalfa and other legumes, and will make them store up nitrogen and strengthen the growth of the plant. Alfalfa is mainly good because of these bacteria, and since gypsum helps them, it does lots of good. Lime also aids their growth, but not quite as much as does gypsum. This farmer therefore plans to apply either carbonate of lime or gypsum to all the field at the rate of about 300 pounds per acre. Next summer there should be some results to tell about.

What would be best of all for the field would be superphosphate, as that would add the desirable, and not too abundant, plant food, phosphorus, to the soil, and, since superphosphate contains gypsum, it would do all the good that gypsum alone would. Gypsum is more of a soil stimulant than anything else; superphosphate would build up the soil. Superphosphate is, of course, more expensive.

It probably is generally known by this time that straight sulphur added to the soil frequently acts with decided benefit to crops grown. That is because the sulphur is changed gradually by air and water into sulphuric acid, combining with lime and other materials in the soil to make gypsum and related substances. One pound of sulphur will make more than three pounds of sulphuric acid, which has been used experimentally, and with great success in spots, as a fertilizer. On reading last summer that sulphuric acid had been used instead of gypsum, to treat black alkali, it occurred to me that if sulphur could be used instead, it would do three times as much good weight for weight as would sulphuric acid, and it could be applied far more conveniently. If so, this would be a great aid in reclaiming lands now spoiled by black alkali.

A Caterpillar "Cure"

IN AN address before the Petaluma Grange recently Horticultural Commissioner Bremner announced a sure cure for the caterpillar pest and the saving of the trees affected and it is herewith published at the request of Petaluma Grange, the members of which hope that all will take notice and use the solution as follows:

One quarter of a pound of dry glue, 100 gallons of water, add three pounds dry arsenate of lead. The glue to be dissolved in hot water and added cold to the spray.

Spray trees even after the leaves are eaten in order to remove the web which will otherwise smother the trees to death.

In Alexander valley the caterpillars are ruining the fruit trees and the ranchers are fighting them hard. In Berkeley they are such a pest that the city authorities have employed men to exterminate them and save the shade trees.

Throughout the State they are creating havoc. There are five distinct kinds of caterpillars. The recent mild winter is believed to have encouraged the pest.

Will Find Help for Farmers

THROUGH its legislative committee and Hon. Oliver Wilson, its national master, the National Grange has arranged to assist the department of labor in its special farm labor supplying activities. The national association will request each subordinate grange to appoint a member who shall act as a labor agent for the United States employment service. As the granges send to the secretary of labor the names of their respective agents, blanks for applications for men or jobs of the employment service and other matter will be sent to the agents.

Each agent will begin his work by obtaining from the members of his grange and all other farmers in his vicinity applications for labor. He will see to it that the applications are specific as to kind of men wanted, period of employment, wages, etc. If an office of the United States employment service is near by, the agent will send these applications under frank to it for immediate attention, otherwise he will send them to the county agent of the Department of Agriculture, who will endeavor to fill them, sending those which he can not fill to the federal employment service.

The grange agents also will try to find all available labor in their communities and list them on a form provided by the employment service. To prevent sending men to jobs for which they are not fitted, the agents will examine applicants whenever possible to ascertain their fitness.

No Scarcity of Grain Sacks

THE county farm advisers have been notified by the Grain Corporation of the United States Food Administration that bag importers have purchased several million more grain sacks for arrival here early in July through the help of the Government at a price which enables them to sell at 26½ cents. Therefore, farmers should be able to obtain bags out of this new lot at about 27½ cents through the bag distributors. There have been a few recent sales at high prices. Country dealers in some cases demanded as high as 30 cents for bags. This is but a temporary shortage, according to the Food Administration, since plentiful supplies will be on hand to take care of the California crops.

See Phonograph Offer Page 19—Adv

The Home Flower Garden

By Mrs. E. E. Paquette
1118 Polli Street, Ventura, Cal.

Patriotism and Flowers

ONCE again there comes the query, "should I take out my flowers and plant vegetables? Am I lacking in patriotism if I refuse to dig up my treasures that I have gathered from all my friends, a root here and a cutting there, and plant vegetables in their places?"

Do not under any circumstance dig up your garden. Never did we as a nation need the cheer of flowers as we do now. We may not have the time to give our gardens the care we have done. We may not feel we can afford to buy new expensive plants, as we have done, but let us care for what we have. If you want to be real patriotic in your garden call in some mother, whose son is fighting our battles over there and visit with her in your garden. Let her feel the consolation that can come only through flowers.

Talk to her about your garden pets, how you brought this one with you from the old home in the East, and how the seeds of another were sent to you by some dear friend, how you snipped a cutting of another from some fine garden you visited. For, oh dear, garden lovers, we all do just that. If she has a garden help her to keep interested in it, and if she hasn't any garden help her to start one by giving her cuttings, bulbs or divisions of your choicest treasures.

There is another reason why we should keep our flower gardens, and that is for the growing children at home. While we are facing our war problems let's not forget the younger children. In no way can a mother explain the secrets of nature to growing children as she can in the garden. If they are told that even the fragrance of a rose is in a way a sex call and is used by Mother Nature for reproduction, they can not help but have a clean, sweet idea of reproduction. And if we show them the care we take to grow perfect specimens so as to get perfect undwarfed seeds and young plants it cannot help giving them a strong, clean lesson in keeping themselves clean so that they, too, may be perfect specimens.

Every question my children ask me is answered in the garden. For that reason if for no other we need our gardens as long as there are growing children in our family.

Rose Troubles

"I was told by a florist that we home gardeners often lost bloom by not using care when we cut our roses. Is there a right and wrong way of cutting roses for cut flowers? If so will you tell us what is the right way, and why?"

The one main idea to keep in your mind when you go to cut your roses is this: Cut so as to leave no blind wood.

If you will notice your roses you will see that the bloom shoot grows out from a larger branch, and if this is cut or torn off the main stalk close up to the stalk there will be no bud to take up the sap that has been feeding the bloom you cut off. So do not cut off the entire stem of the rose, but leave just a small piece next the main stem. And always leave an outward turning eye or bud just below the cut. This will begin to swell and grow and in time form a new bloom shoot. And by leaving an outward turning eye you will keep the bush in good form, with open center which is very desirable.

Pruning Climbing Roses

"My climbing Cecil Brunner is sending up great long, new shoots. The wood is very soft and red and the shoots come from the bottom. Are these suckers and should I cut them off? I would not like to have the plant any larger than it is at present."

I do not think the new shoots are suckers, as most Cecil Brunners are grown on their own roots, and suckers, as we generally use the word, means the shoots that start up below the graft on grafted roses and are of the variety of the root and not the top rose.

If you want to keep your rose down to a limited size I would advise cutting out some of the old wood that has bloomed this last season, and leave the new shoots for they will soon begin to develop bloom.

About Mildew

"Are there any roses that are absolutely free from mildew here in California? How about Dorothy Perkins, Philadelphia Rambler and that type? Will La France ever do well near the coast?"

I never have been able to make La France grow or do anything worth while. And I have only one rose in my garden that has not at some time had mildew on it. That is the William R. Smith. The Dorothy Perkins type will all mildew after the first year regardless of what the catalogues say. I am very much like the old farmer at the circus in regard to roses that are free from mildew. "There ain't no such an animile."

Low Hedges

"I saw a hedge once that was fine leaved plant and very fragrant, with a peculiar old-time garden spice fragrance. I think it had a small white bloom, but am not sure. Could you tell me what it was and is it adaptable to Southern California near the coast?"

Myrtus Microphylia—which means small - leaved myrtle — makes the very best low hedge of any plant obtainable in California. It is clean, has a small white flower, and has that rare spicy fragrance that is so desirable.

Propagating Vines

"I have a big vine of the perennial pea and would like to start another one. Do I start them from cuttings or seeds? I wish you would also tell me how to make my climbing fig climb. It seems to be growing nicely, but does not climb. Would also like to start a few more plants of it. How do you propagate them?"

The perennial pea is started from seeds. Very much as sweet peas, there are different colors. If you have a white, you can also get seeds and have pink and lavender. Plant the seeds as soon as ripe where you wish them to grow, as they do not transplant easily.

To start your creeping fig in the way it should go, take a piece of lath and nail a shorter piece on it in the shape of a "T" and prop your vines up against the surface they are to climb on. After they have taken hold and begun to climb, watch them and trim off any that fall away.

They will not start readily from cuttings. It is better to layer them, staking the layers down near the tips until rooted.

Pretty Costumes

Selected by Ruth Roberts.

These costumes are all carefully chosen with a view to their adaptability to the needs of the home dressmaker. None is elaborate or complex and all can easily be made from the patterns provided by this department. To get any of the patterns send ten cents in silver or stamps to Pattern Department, Orchard and Farm, Examiner Building, Los Angeles.

2538—Girl's Dress

Cut in 5 sizes: 6, 8, 10, 12 and 14 years. Size 12 requires 4⅞ yards of 36-inch material. Price, 10 cents.

2247—Lady's One-Piece Dress

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 36 requires 5¾ yards of 44-inch material. The skirt measures about 2⅝ yards at the foot. Price, 10 cents.

2539-2527—Lady's Costume

Waist 2539 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 2527 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. For a medium size the entire dress will require 8½ yards of 36-inch material. The skirt measures about 2 yards at the foot. TWO separate patterns, 10 cents FOR EACH pattern.

2540—Miss' Dress

Cut in 3 sizes: 16, 18 and 20 years. Size 16 requires 5⅝ yards of 36-inch material. The skirt measures about 2 yards at the foot. Price, 10 cents.

2542—Girl's Dress

cut in 4 sizes: 6, 8, 10 and 12 years. Size 10 requires 3¾ yards of 44-inch material. Price, 10 cents.

2532—Lady's "Cover All" Apron

Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. Size Medium requires 5½ yards of 36 inch material. Price, 10 cents.

2373—Girl's Dress

Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 12 requires 6¾ yards of 44-inch material for the dress with jacket. The jacket alone will require 1½ yard. Price, 10 cents.

2346—A Set of Useful Bags

The Patterns are cut in One Size. No. 1 will require 1⅛ yard. No. 2 will require 1¾ yard. No. 3 will require ¾ yard of 36-inch material. Price, 10 cents.

2530—Boudoir Set

Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. Size Medium requires 4⅛ yards of 36-inch material for the gown. The cap requires ⅛ yard. Price, 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date spring and summer 1917-1918 catalogue, containing 550 designs of ladies', misses' and children's patterns, a complete and comprehensive article on dressmaking, also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker.

Use Coupon in Ordering Patterns

Herewith find .....cents for which send me the following patterns

Pattern No.....

Pattern No.....

Pattern No.....

Be sure to give number and size. Send for patterns to ORCHARD AND FARM, Examiner Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below

Rabbits Instead of Chickens

DO rabbits pay better than chickens? The investor tells us they do. One year ago H. McGee of Berkeley, Cal., decided to raise rabbits in his back yard. He purchased two red does and built some small pens or hutches. The entire expense for rabbits, pens and feed was something less than $15.

He is now the owner of nearly 50 rabbits valued at more than $90. During the year he netted something like $[illegible]3 besides reducing the meat bill on the home table. His income therefore from the rabbits can be figured at more than $60 a year or more than four times his original investment of $15.

"Rabbits cost one-half as much to raise as chickens," says McGee, "and at seven weeks bring 30 to 35 cents a pound. I attribute my success," he continued, "to my manner of feeding. In the morning rolled barley and at noon time a little green grass.

"Contrary to the old custom, I never feed cabbage, cauliflower or lettuce. Avoid all wet food if you wish to be successful with your rabbits, and keep the pens or hutches dry and clean.

"Flemish Giants, New Zealand reds or Belgian hares are all good breeds.

"Rabbit pelts are now used very extensively in the manufacture of hats, and bring all the way from 10 to 80 cents each. The imitation red fox furs now used are being made from the pelts of the New Zealand red. All families are advised by the government to raise their share of bunnies and reduce the cost of living."

In direct contrast to the raising of rabbits for profit and small investment was that of an Alameda man. His bunnies were fed on lettuce, cabbage and all sorts of vegetables. The hutches were wet and sloppy, the result being sickly and unhealthy bunnies.

The five little ones died a few weeks after birth, and the Alameda owner gave up rabbit raising in disgust, yet this man was unusually successful in his work as a gardener. He simply did not put into the new endeavor the same energy and study that he did in the garden, neither did he read Orchard and Farm for information on how to be successful in the raising of the new source of food supply.—Sophie Garwood.

Hoover on Pinto Beans

HERBERT HOOVER, National Food Administrator, commends the pinto bean, which has been grown so abundantly in the Santa Fe Southwest, since the war overseas broke out. He says that the bean division of his bureau is publishing and spread the great value of this product in producing food for soldiers. From a leter to M. D. Foster, a representative in Congress, acknowledging receipt of a letter from E. C. Telford of Mountainair, N. M., on the subject Continuing, Mr. Hoover says: "Pinto beans were not known in a commercial way in this country five years ago. At that time, the farmers in New Mexico and Colorado sold them for from two cents to three cents per pound, and practically all of the farmers state that three cents per pound would make a profitable crop for them. It hardly seems possible that the price of growing have advanced 200 per cent in New Mexico, and we know that the selling price of the bean has increased from 100 per cent in the past few years, and as the public becomes better acquainted with the bean, we believe the price will more nearly approach that of the white bean."

[illegible]

The Mating Question

IN view of the recent references in Orchard and Farm to a "six hen hatchery," H. A. Schlotthauer's experience in Tulare county, Cal., is interesting. When he went to the place eight years ago he brought with him 60 white leghorn hens and three roosters. One rooster got killed, leaving only two roosters, or 30 hens per rooster. There was a free range and little trouble from the roosters interfering with one another, so conditions were better than they would be with that number of hens per rooster in a large flock and close quarters, but that was far from the 6 to 1 system. The chickens from the matings were strong and vigorous. The present system, which has been followed for a long time, is to have one rooster per 15 hens and the standard of fertility of eggs and strength of chicks is all that can be asked. Lack of vitality has been noticed from crowding the hens too much in laying; and scrubby stock is easily secured by neglect, poor feeding or disease, in raising the chickens, but with one rooster per 15 hens; both being kept strong and vigorous, and the chickens being properly raised, a fine bunch of pullets can be secured.

One mating, it is said, will fertilize a strong of nine eggs. If this is true the six-hen hatchery could as well be a 20-hen hatchery or better.

Three years ago on the Schlotthauer place about 240 hens only were kept. In late fall, well after the moult, an average of 80 eggs per day was being secured when Mr. Schlotthauer tried the Hogan system on his hens. These are the results as he stated them from memory:

Pen No. 1, including the high standard fowls, was made with 100 hens qualifying. Pen No. 2, with medium class fowls, had 80 occupants. Pen No. 3 had 60. Hens from the first pen produced nearly 60 eggs per day; those in pen 2 about 25 eggs per day, and those in the third pen not one, and they did not lay any either until spring and then only a few, so they were shipped off to market, where all poor hens ought to go.

As a result of this experience the system has been used ever since, and although no effort has been made to develop records, good selection of stock and good care in handling shows itself in the fowls.

Shortly before the visit of the writer returns from two lots of 56 hens each, shipped to San Francisco dealers, were secured. One lot weighed 205 pounds; the other 215 pounds, averaging 3¾ pounds per hen at the market end. Whether those weights for old leghorns show size and vitality or not the writer is not poultryman enough to say.

Well, the great poultry centers of the coast counties are all right for poultry raising, but there are advantages in the wonderful agricultural districts of the interior valleys that will, when development is accomplished, make the coast look to its laurels.—D. J. Whitney, Exeter, Cal.

A Frog in the Pump

ON a place near by, over which the writer has to a certain extent a supervisory oversight, the pump one afternoon gave only about a third of a stream. On investigation the motor was found to be cool and running smoothly and everything was apparently in perfect condition. The face of the pump was taken off and the remains of a frog found therein. Some time before, the covering of the well had been removed, a frog had evidently jumped down, died, sunk to the bottom, been sucked into the pump, and caused considerable delay and labor. Moral: Keep the wells covered, and if not, and the pump acts as this did, look for a frog first and run for the pump expert only if the frog or other invader is not found. —D. J. W.

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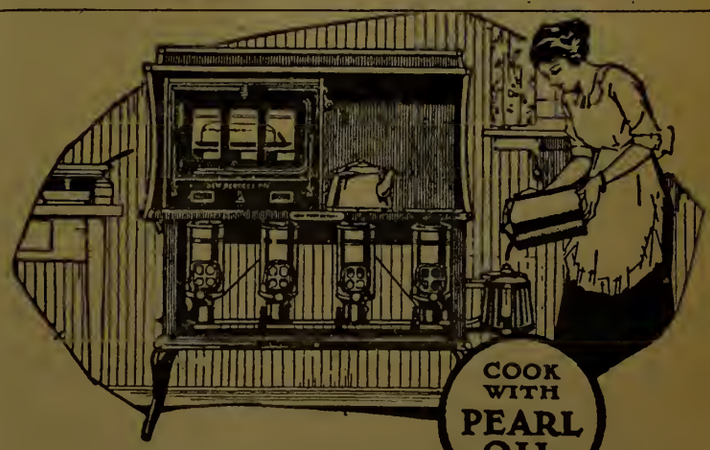

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REAL ESTATE

FOR SALE—
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SEVEN ACRES AND A BUNGALOW.
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Located 5 minutes' walk from the station, in an excellent neighborhood, we have for sale a high-class property of 5 acres bearing Blenheim apricots, 2 acres in 3-year-old French prunes; has fine modern bungalow with every convenience, hardwood floors, electric range, expensive plumbing, etc., has cottage for help, garage and modern pumping plant, equipped with a Kewanee high-pressure tank; also stable and poultry houses and yards for 500 chickens at exceptionally good place; price $9500.

10 acres and a bungalow, located 5 minutes' walk from the station, the soil is rich and fertile and is all planted to English walnuts and apricots with alfalfa in between; has a new modern bungalow with every modern convenience, even to an electric range; has fine water plant, garage and equipment for 1000 chickens, price $10,000, an offer will be considered.

BEAUTIFUL HIGHWAY PROPERTY.

30 acres first-class soil on State Highway in an excellent neighborhood; 10 acres in young bearing prunes, 10 acres in young bearing apricots and 10 acres in bare land, has a fine modern bungalow of 7 rooms with every convenience, complete set of outbuildings, domestic water plant and engine, house for help, etc.; trays, boxes, implements, horse and complete equipment go with the place, there is a fine electric pumping plant on the propert; which produces about $1000 annually from sale of water outside, one of the most attractive and productive places on the peninsula; price $35,000; terms of payment can be arranged.

A GENERAL FARM.

88 acres of sediment soil located one mile from the station, in the richest section of Santa Clara County; this place is equipped for general farming, dairy or stock raising; the place is fenced and cross-fenced and divided into 5 fields; each field is supplied with water; the place is now cropped to grain with one field reserved for pasture, part of the place is now leased at $35 an acre for tomatoes; improvements consist of good residence of 6 rooms with the usual conveniences, large barn, dairy barn, granary, cottage for help, poultry and pig houses, yards, corrals, etc.; farming implements tools, wagons, etc., included; price $27,500.

All of the above places located within 6 miles of the Stanford University.

WILLIAM P. WRIGHT,
Mountain View, Santa Clara County, Cal.

FOR SALE—320 acres highly improved property, 70 acres peach trees; 60 acres Muscat and Thompson Vines, 90 acres alfalfa, 90 acres in townsite, on S. P. R. R. High school; grammar school, club house, two churches, and large modern cheese factory, and Standard Oil station, all on this property. Two dairies of 50 cows, four sets buildings for tenants, also hotel; personal property and buildings worth over $30,000. This is good income property. Price $150,000. One-third cash. Terms on balance. Address H. R. Kamm, 1025 Divisadero St., Fresno, Cal.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents, for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Texas.

NO. 1004—75 ACRES ON RIVER, near steamboat wharf; 1500 fruit trees, mostly young peach and apple; 8-room dwelling, front porch, 2 halls, attic, shade, well fenced; 15 acres of woodland, chestnut and oak; 7 acres meadow; 6½ miles from county seat; barn and stable; new pig pens (1x60; buildings worth $3500. Price $3250. Russell Realty Co., Baltimore, Md. Catalogue.

IN THE GREAT SAN JOAQUIN VALLEY—Large tracts of unimproved land. Can sell 20 acres or 10,000. Improved vineyards, orchards, alfalfa, stock and dairy ranches. If you mean business write your wants. E. B. Wilson, Box 526, Fresno, Cal.

WELL IMPROVED TWO-ACRE POULTRY RANCH and suburban home in best part of Santa Clara Valley. Can arrange to take part payment from profits. Owner, J. H. Stubbe, Box 67, Palo Alto, Cal.

FOR SALE—600 acres good level, unimproved land in Klamath County, Oregon. Good alfalfa land or stock ranch. Price $10 per acre. W. H. Johnson, owner, 52 Mape Ave., Watsonville, Cal.

STUMP LANDS, FAMOUS FRUIT, HAY BELT, Hood River Valley, irrigated, practically level, employment 10 years' time. Box 185, Hood River, Oregon.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

BEAUTIFUL HOME SITE—El Cajon Valley, 16 acres, 6-room house, cheap. M. Ferrill, 30 S. 6 St., San Diego, Cal.

REAL ESTATE

A FINE OPPORTUNITY.

I own an alfalfa and dairy property near Modesto, also some very fine Holstein cows that have been selected with great care. Owing to pressure of my large law practice I am unable to give the matter attention. In order to make a quick sale of the property and dispose of the land and cattle I will offer the land in full stand of alfalfa at $250 an acre in parcels to suit purchaser; 10 per cent cash, balance 3, 4 or 5 years; low rate of interest to bona fide purchasers who will go on the land. I will sell them the cows on the same basis and loan purchasers the necessary farming implements. Under these conditions a man can go right on the place and make a good living at once, be independent and make money and pay for the land out of the land. Address Box No. 716, Orchard and Farm, San Francisco.

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Land with water; best location in State; no payment down, in lots of 20 acres or over, on highway; fine soil, grow anything. You must improve and farm the land you take. Write for particulars.

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GOOD HOG OR DAIRY RANCH—200 acres; 70 acres alfalfa land; good buildings, running water; near town. M. Funk, Etna Mills, Cal.

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TEN ACRES GROWING ALFALFA—Near town; $2000, terms. Owner, 2225 East 32nd st., Oakland, Cal.

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WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

WANT ALFALFA or dairy ranch. Give particulars. Mark Baldwin, Mesa Grande, Cal.

WANTED—TO HEAR FROM OWNER of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minn.

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CASTMAN'S Bred-to-lay" Hoganized and Trapnested Barred Plymouth Rocks. ALL chicks. Airedale pupies. Fairmead oultry Farm, Fairmead, Cal.

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NN'S COUNTERBALANCES FOR FORDS—Eliminates all friction and viation. Install yourself; it's easy. Agents ted everywhere. Write for particulars. nn Counterbalance Sales Co., 1220 San o St., Los Angeles, Cal.

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EAD GARDENER, SUPERINTENDENT R FOREMAN, open for position. Adss, stating wages offered, to Henry 1025 4th Ave., San Mateo, Cal.

G LADY DESIRES POSITION on h. out-door work; reasonable salary; l reasons. Box 717, Orchard and San Francisco, Cal.

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LIVESTOCK—Sheep, Milch Goats

A PRACTICAL English sheep breeder and fine wool grower from Australia. Expert experience in steam cultivation and planting fattening pastures, for stock and early spring lambs, is open to manage a first class sheep ranch, or will examine and report upon suitable sheep properties and favorable conditions. Address Sheep Breeder, 1242, 42nd Ave., San Francisco.

D. E. KELLIHER—Importer and Breeder of Hampshire sheep, Eugene, California, offers for sale a choice lot of yearling Hampshire rams sired by Walnut Hall and Butterfield Rams purchased at Salt Lake, August, 1916. Inspection and correspondence invited.

LIVESTOCK—Poland Chinas

HEWITT'S BIG TYPE POLAND CHINAS—Bred sows and gilts. Hewitt & Hewitt, Dixon, Cal.

LIVESTOCK—Duroc Jerseys

DUROC-JERSEY BOARS, both weanlings and old enough for service. Prices right. Breeding and satisfaction guaranteed. H. E. Boudier, Napa, Cal.

LOS HERMANOS DUROCS—Boars, gilts and weanlings. Hans Duveneck, Ukiah, Cal.

LIVESTOCK—Sheep, Milch Goats

TOGGENBURG MILCH GOATS — Rae P. Williams, Federal Realty Building, Oakland, Cal.

TOGGENBURG GOATS — Edwin Pritchett, Mojave, Cal. Enclose stamp.

LIVESTOCK—Guernseys

FOR SALE—Guernsey bull, three months old; not registered, but fine stock; $30. Box 83, Kentfield, Cal.

LIVESTOCK

I NOW OFFER MY SPRING PIGS, sired by Cook's Hancherdale Jones, a grandson of the famous Gertsdale Jones, and out of big prolific sows, the best of the "Big Types." Write for prices and further information. J. H. Cook, Paradise, Cal.

FOR SALE OR EXCHANGE—For land, large black registered jacks and jennetts; best bunch in California. A. L. Allen, Perris, Cal.

BONE SPAVIN, splint or ringbone removed with one application. Money back guarantee. Henry Chappelle, Woodburn, Ore.

MISCELLANEOUS

EVERYBODY should read The Great Exchange story; mail order, real estate, investment and general information weekly; contains 20 to 40 pages of opportunities; offers, plans, secrets, bargains, cash buyers, etc., that will put you on the road to more money making. Your name printed in our opportunity directory and a special 2 months' subscription for 25c. Ad rates 3c per word for four insertions. Thousands of "live wires" to read your ad. Address The World's Mirror, Beaumont, Texas.

ICE PLANT—A "Barber" machine; best in the world, valve-in-head type; three tons capacity; 800 feet ammonia pipe and 1000 lbs. casting valves, bends and other essential fittings; all good as new; a complete refrigerator plant will be sold at a real bargain for cash; shipping weight, five tons. Pacific Agricultural Station, Coquille, Ore.

HOROSCOPES scientifically written. Your marriage, best business, probable health shown. Write for terms, giving time of writing. Robt. R. Hill, 2188 Sutter St., San Francisco.

I WILL DELIVER a small box of lemons for $1.00, containing 4 dozen; prepaid to any part of the U. S. Ernest Vince, Santa Barbara, Cal.

GUARANTEED SEEDS

NEW NOVELTIES, PROLIFIC, PRACTICAL plants for "War" gardeners. Listen —GIANT MARROW CABBAGE grow ten feet high, sometimes bear yard-long leaves, some 20 inches wide. Can be planted all year round for California climate. Best winter grower. NO WASTE as with kale; solid, marrow-laden, ENTIRELY EDIBLE trunk, quickly increases egg, butter and flesh production; best "GREENS" grown; 500 GUARANTEED, PEDIGREED SEEDS, 25c; five such packets, $1; acre supply, $2.

"GOLDEN POTLATCH" bush Pea produced three crops from the same roots. Sweetest, greenest, tenderest; "canning" unnecessary; well-soaked ripe peas, properly cooked equally palatable; regular packets, 10c; 6 for 50c.

RAREST BEANS, bush and pole, for coast planting; packets, 10c.

"PURPLE PERFECTION POTATO"—Salad specialty, frost-proof, prolific, superearly; demands CONSTANT GROWTH, assuring two crops yearly for Californians without "keeping-over" worrying. Sample 10c, pound 35c; three pounds, prepaid, 90c; Photos, particulars, FREE.

E. E. MARTIN, Guaranteeing Seedsman, B-4, Charleston, Washington.

NURSERY TREES AND PLANTS

THOMPSON'S SEEDLESS AND EMPEROR GRAPES have unbeatable prospects; produce heavy, uniform crops; high prices certain; bear well third year. Unexcelled raw land, $70 acre and up; good for oranges, olives, figs, early fruits. Can arrange to bring into bearing. Mature vineyards bringing $700 to $1000 an acre. Write or visit D. J. Whitney, Exeter, Cal.

RHUBARB—$1127 from one acre. A crop every month of the year. Write to me and I will tell you how you can do as well. J. M. Stone, Lodi, Cal. Route 4.

FIELD SEEDS, GARDEN STOCK

SEED, GRAIN, THRESHING Machine and Harvester Screenings Wanted—Cash paid for large or small quantities. Mail samples on which we will quote. Mercantile & Warehouse Co., Fifth and Poplar Sts., Oakland, Cal.

AUTO TRAILERS

AUTO ACCESSORIES, SUPPLIES

FORDS CAN BURN HALF COAL OIL, ALL DISTILLATE, or Cheapest Gasoline, using our 1918 Carburetor; 34 miles per gallon guaranteed. Easy starting. Great power increase. Attach it yourself. Big profit selling for us. 30 days' trial. Money back guarantee. Styles to fit any automobile. Air-Friction Carburetor Company, 325 Madison st., Dayton, Ohio.

PATENT ATTORNEYS

HAZARD & MILLER, ATTORNEYS AT LAW—Patents and Patent Causes. Henry T. Hazard established the agency in 1878, which has been uninterruptedly in business since that time. Herman Miller, eight years examiner in U. S. patent office. Our library contains the record of every U. S. patent. Examination without charge. HAZARD'S 1918 BOOK ON PATENTS FREE. 504-505-506 Central Building, Sixth and Main streets, Los Angeles.

PATENTS that protect are secured through us; established fifty years. Send for free booklet on "Patents." Pacific Coast Patent Agency, Inc., Stockton, Cal.

FARM TRACTORS, MACHINERY

IDEAL HOIST FOR UNLOADING HAY, driving fence posts, stretching fences, erecting buildings, and numerous other purposes around the farm. Inexpensive, great labor saver. Send for pamphlet. U. S. Iron Works, Seattle, Wash.

AVERY 8-16 TRACTOR—Brand new—1918 model. Never been used. For sale at substantial discount. If interested, write for price and where this tractor may be seen. Address Box 750, Orchard and Farm, Hearst Building, San Francisco, Cal.

F. T. BRILES

Southern California Distributer Cleveland Tractor, Heavy Tractor Implements, Schmeiser Land Leveler and Hay Derrick. 214-216 North Los Angeles Street, Los Angeles, Cal.

FISH Salmon in brine, 100 lbs., $11.00. Shipping weight, 175 pounds, Smoked salmon, 20 lbs., $3.25. Dried codfish, 10 lbs., $1.75. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

REAL ESTATE—Sale or Exchange

FOR SALE ON EASY TERMS OR TRADE for income property, San Francisco or Bay, Liberty bonds or mortgage; clear; 320 acres almond, pear, apple and alfalfa land, fenced and buildings, power wire; one mile from Del Sur, Los Angeles County, California. Money can be doubled within two years; prospect good for oil; some particulars first letter. Geo. Dall, 621 Sansome st., San Francisco, Cal.

INCOME PROPERTY; centrally located; 5-room house, bath, toilet, pantry, gas, electricity; basement, concrete floors, laundry, hot and cold water; shed, 8 by 20; fruit trees, fig; half minute to car lines; $1150 mortgage, which can stand; value, $4000; would exchange for small ranch. J. S. Marshall, 1729 36th ave., Oakland, Cal.

FOR SALE OR TRADE—Two ranches, cheap for cash. Address "Rancher," Box 68A, Route 1, Winters, Cal.

FARMS FOR LEASE

OWNER of 9400 acres of timbered land, plenty of water, in Latimer, Adair and Sequoyah Counties, Oklahoma, would lease or go in partnership with owners of Angora or milk goats who want better pasture. Address Simon Jankowsky, Tulsa, Oklahoma.

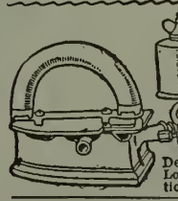
GOVERNMENT LANDS

RELINQUISHMENT FOR SALE—160 acres choice spot in Victor Valley, 18 miles east of Victorville, San Bernardino County; all level; elevation, 2800 feet; 65 acres cleared of brush; well, good water; good loose soil; $1000 cash desired. Will consider trade. Owner, 1548 45th avenue, San Francisco.

RABBITS, PIGEONS, DEER

FROM MY IMPROVED GIANT CHECKER BUCK, I have five 5-months-old and second 1918 litter, just born, to choose from, at Fox's, the Pet Stock Breeder. 356 Corbett ave., San Francisco, Cal.

MISCELLANEOUS—FOR SALE



Do You Iron Today? If so, keep cool. Use the Imperial self-heating Iron. Makes its own gas, gasoline from kerosene. The cheapest and best iron made. Cole Lite & Sales Co., Lamp Dept., 1216 to 1220 E. 41st st., Los Angeles, Cal. Demonstration room, 245 S. Spring St

A. LEVIN, successor to Kelly Machinery Co. All kinds and sizes of Pipe, Engines, Boilers, Pulleys, Shafting, etc. Good second-hand Wire Rope, Manila Rope and Barb Wire. 524 Mission Road, Los Angeles

HIGH VOLTAGE TRANSFORMERS, recent make; must sell quickly; good for irrigation plant. S. M. Gardner, 5430 Shafter, Oakland, Cal.

SPLIT REDWOOD POSTS
Any size, any quantity. Write for prices.
W. E. Whitmore, Cloverdale, Cal.

LUMBER—Building Material

EVERYTHING FOR THE BUILDER — All kinds of second-hand building material; doors, windows, lumber, shingles, corrugated iron, cement trays at the lowest prices; send list and get estimate; country orders and carload lots a specialty. H. McKevitt & Son, Wreckers, 1849 Mission street, near 14th, San Francisco, Cal

ALL NEW LUMBER PRICES CUT, also millwork. Shingles, 48c bunch; 6x18 ins. shakes, $7 per M.; 36-inch shakes, $12 per M.; siding, $15 per M. Mail lists to Swift & Co., 10th and Mission Sts., San Francisco.

LUMBER BARGAINS for poultry men and farmers. Special prices to reduce our stock this month. Woodhead Lumber Co., 5800 South Main street, Los Angeles, Cal.

DRIED VEGETABLES & FRUITS.

NEW-WAY Vegetable Dryer, 227 13th St., of iron, fire brick and tile; 3 ft. by 8 ft. by 14 ft.; twelve shelves carrying sixty trays 30 ins. by 30 ins. Recording heat gauges. Oil burner complete. Will dry from 1000 to 1500 pounds at each filling. Address "NEW-WAY" vegetable or fruit driers made San Francisco, Cal.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES, SAMPLES and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.,
The Yellow Front. Established 1892.
112-118 South Los Angeles St.,
Los Angeles, Cal.

Hundreds of Loose Wheels Saved

Shrunken wheels, so loose they were thought beyond repair, have been rescued from the scrap heap. Spoktite has restored hundreds to their original tightness and made them as safe as new.

Spokes Tightened Permanently

The loose, dried-out spokes save been swelled by the application of Spoktite. This modern wheel tightener penetrates the wood, fills the pores with life-giving liquid and then seals itself in—**to stay.**

Spoktite, once applied, cannot evaporate. Thus, wheels once tightened, remain tight and sturdy.

Cost Practically Nothing

The old way of tightening wheels is only temporary and costs $10.00 or more per set of four. One can of Spoktite does the work permanently and costs only $1.50. It's good for auto, carriage and wagon wheels and all other wood products.

At Garages, Auto Supply and Hardware Stores

Buy it in the handy squirt can or have your repairman do the work for you. He charges only $3.00 to $5.00. If you can't get Spoktite, use the coupon.

THE WOODTITE LABORATORIES

MODESTO, CALIFORNIA

TIME SAVING COUPON

The Woodtite Laboratories,
Modesto, Calif.

Gentlemen: — Please send me, without charging me for shipping

..... (state how many) cans Spoktite, at $1.50 per can. My dealer has none in stock. Enclosed

find remittance for .....

My Name .....

Full Address ....

.....

Dealer's Name .....

GREAT SINGLE TAX DEBATE GROWS HOTTER AND HOTTER

September, 1918 *Profitable Tobacco Venture* 10c Per Copy

ORCHARD *and* FARM

ESTABLISHED 1888

Stockton Free Pub
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Jan 19

Success With Milch Goats

Offices
Los Angeles and San Francisco

How many kills to YOUR *shot pattern?*

MOST hunters agree that three shots or more are essential to a *kill.* Less than three may mean a *cripple,* no matter what the size of shot or its velocity. Hence uniform pattern, i. e., an even spread of shot, is essential to successful shooting, in the field or at the traps.

The secret of good patterns is in the *control* of the powder explosion. Good, evenly-distributed patterns are the direct results of a correct system of wadding scientifically adjusted to the bore of the gun and the load. The wadding, like the piston head of a gas engine, must give the explosion something solid to work against, so that the shot may be *pushed* out evenly.

It must expand and fill the tube of the barrel, completely sealing in the gas behind it. No gas must escape to scatter the shot.

It must offer just the right amount of resistance to the explosion so as to develop uniform pressure and high velocity without danger of jamming the pellets out of shape at the "choke" or muzzle construction.

The Winchester System

Winchester Wadding is the result of repeated experiments to determine the most efficient control of the gas blast.

The special construction of the Winchester *Base Wad* gives what is known as *Progressive Combustion* to the powder charge.

Combustion spreads instantly through the powder charge. By the time the top grains of powder become ignited the *full* energy of the burning powder behind is at work.

Though the explosion is almost instantaneous, it is none the less *Progressive,* the final energy and maximum *velocity* of the completely burned powder being developed at the *muzzle,* where it is most needed.

Meanwhile, under the heat and pressure of combustion, the tough, springy *Winchester Driving Wad* has expanded to fill the barrel snugly all around. No gas escapes. It is completely sealed in. The wadding *pushes* the shot evenly.

At the muzzle the shot pellets slip out without jamming while the wadding is checked for a brief interval by the constriction of the muzzle. *It follows some distance behind the shot pattern.*

The shot cluster travels on unbroken by gas blast or wadding and makes the hard-hitting, uniform patterns for which Winchester shot shells are world-famous.

Fish Tail Flash. All Winchester smokeless shells are made with the new Winchester Primer—the quickest and most powerful shot shell primer made. Its broad *fish tail* flash gives even and thorough ignition. Every grain of powder is completely burned up before the shot charge leaves the muzzle.

The Crimp. The required degree of pressure necessary in seating the driving wads is worked out in combination with the *hardness* or the *softness* of the *crimping* required for any particular shell.

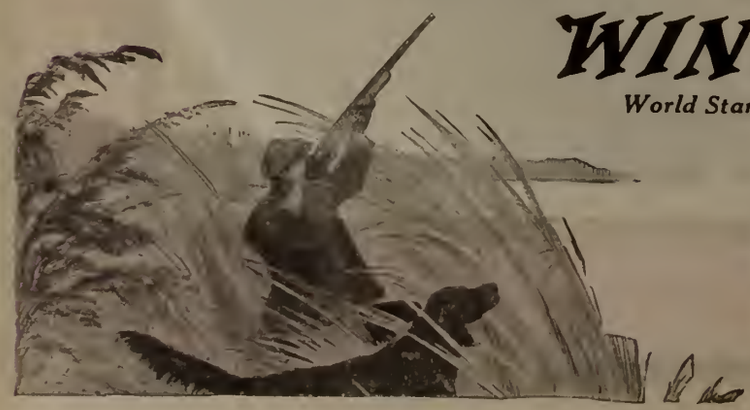
Waterproofing and lubrication. In the cold, damp air of the marshes, or under the blazing sun at the traps, Winchester shells will always play true. Winchester waterproofing process prevents them from swelling from dampness. Special lubrication of the paper fibers prevents brittleness and splitting in dry weather.

Uniform shells. From primer to crimp, Winchester shells are constructed to insure the maximum pattern possible from any load and under all conditions. $100,000 is spent annually in the inspection and testing of finished shot shells. 25,000,000 rounds of ammunition are fired every year in testing guns and ammunition.

Clean Hits and More of Them

To insure more hits and cleaner hits in the field or at the traps, be sure your shells are Winchester Leader and Repeater for Smokeless; Nublack and New Rival for Black Powder. Write for our Free Booklet on Shells. **Winchester Repeating Arms Co., Dept WK-11, New Haven, Conn.**

The Winchester system of wadding. The wadding expands evenly, sealing in the gas blast all the way to the muzzle, where the wadding is checked by the "choke" or constriction. Shot cluster travels on ahead, unbroken. Actual test target, 320 pellets out of 431, or 74 per cent of the shot charge (1¼ oz. of 7½ chilled) inside a 30-inch circle at 40 yards.



WINCHESTER

World Standard Guns and Ammunition

ORCHARD and FARM

Published monthly. Subscription rates: 50 cents a year, $1 for three years. Entered as second-class matter at the postoffice at Los Angeles, Cal.

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Big Success With Tobacco

Forty Yolo Acres Yield $30,000 Net

By J. K. Cushing

THE Chiflakos Brothers, who own a vast expanse of land on the western edge of the Sacramento valley, under the protecting shadow of the coast range mountains, where the billowing hilltops go marching off southward into the purple mist, are enterprising men. The Chiflakos Brothers, all three of whom hale from the sunny land of Demosthenes and Plato, experimented this year with forty acres of tobacco on their large Yolo county estate and a net return of $30,000 from the venture is the answer as to the success of the undertaking.

Never before in the history of that section of the State of California has an attempt been made to raise tobacco until this year and according to statements of the best known experts on the subject in the country, the Chiflakos Brothers' tobacco is as good as is to be found anywhere, even in sections where tobacco raising has been the chief industry for many years.

When these brothers lived in Greece they worked in the tobacco plantations. They all acquired a knowledge of the conditions required to grow the weed, the methods used in successfully cultivating it, and the very important art of curing and preparing it for sale.

When they came to the United States to try their hand at farming in the land by the western sea they made a success of growing many other products, chief among which was grain. And during their silent labor on their Yolo county farm, they waxed rich from their efforts.

They Had the Right Soil

Still remembering the scenes of their youth, when they worked in the tobacco plantations of sunny Greece, they made a study of the soil of their great farm. They had it tested by tobacco experts and all were of the opinion that it was of the proper formation to produce the much-relished discovery of the American Indian.

According to the senior Chiflakos, not every kind of land or climate is adapted to the production of tobacco. The plantation must be situated in a dry, warm section and well protected from chilling breezes either from the mountain or sea. Few attempts have been made, either in California or the great southwest, to produce tobacco and the successful experiment of the Chiflakos may open up a new and decidedly remunerative occupation to land owners in sections of the State where the soil and climatic conditions parallel those of Yolo county.

Harvesting the tobacco crop, and preparing it for sale to the manufacturers is the most important, costly, and difficult part of the entire production. The greatest care must be exercised in taking the large flat leaves from the plant. They first mature at the bottom, near the ground, and must be picked immediately when they start to turn from a deep emerald green to golden brown.

Three Fine Grades Produced

After the lower leaves have been taken from the plant, the next ones are ready and the process is repeated [illegible] of the entire plantation [illegible] taking one leaf from each plant at a time until all have been picked. There are about forty leaves to the plant.

After a thorough investigation and analysis of the soil had been made to determine the varieties of tobacco which would be best adapted to its peculiarities, three grades were planted—Cavalla, Solanaka and Turkish aromatic.

These three grades are the most delicate and among the finest produced by any plantations in the world and the manner in which the leaves have developed and cured in the sun has been highly satisfactory to the producers. A ready market is available for the entire crop as soon as it is ready for delivery.

The Turkish aromatic will be used in the manufacture of cigarettes while the other two grades will be manufactured into cigars and smoking tobacco.

On the forty acres of land the brothers have 40,400 plants to each acre and they will average at least 30 leaves to the plant. It is estimated that when the crop is harvested, the tobacco will run between 750 and 800 pounds to the acre and the market price will range from $1.25 to $1.50 per pound. The outside expense of the crop from the time it is planted until in the hands of the purchaser will average $200 to the acre. Figuring at the lowest estimate, 750 pounds to the acre, at $1.25 per pound and deducting $200 per acre for cost, the entire forty acres of land will net a return this year of $29,500.

The harvesting of the crop and preparing the leaves for market is the

(Continued on Page 11)

Forty Acres of Tobacco on the Chiflakos Ranch, Yolo County, Cal.

Curing and Packing California Tobacco

How I Made Potatoes Pay

Over $24,000 Net From Seventy-Five Acres

By Richard Gillson

WHEN I came to Pomona, California, in 1909, I had no more knowledge of the growing of field crops than any man of forty-one years has who has been keeping books for a large corporation in the city of New York. I had never lived for one day on a farm or in a rural community, but I was spured on grim necessity and simply had to learn. I was broken down in health and was told by my Eastern doctor that the only hope for me was an out-of-door life especially in the semi-tropical climate of Southern California. That is why I went to farming with a capital of $4500, which was my savings of eighteen years. Luckily I had a devoted wife and two of the pluckiest children that God ever made.

I have been growing potatoes near Chino, Cal., for six years and I have made what many an old-time rancher tells me is something to be very proud of in the way of production and money taken in.

Seventy-five Acres Net $24,176

Between July, 1916, and July, 1917, I sold potatoes from seventy-five acres for $26,027, from which the net proceeds were $24,176.

During the six years that I have been farming in potatoes in the Chino district the gross returns have been $81,453. The net returns have been $47,532 exactly. That means that I have paid all my land rentals, for labor, seed, farming implements, taxes, insurance, water rentals, freights and all incidentals and have made for my family living and for investment $47,532 in six years—more money than

(Continued on Page 20)

National Egg Day

Bright Idea From Petaluma

LET'S have a regular national egg day!

Why not?

A national egg day would help the poultry industry and attract everybody to the value of the egg as a nutrient.

The idea of such a day emanates from Petaluma, where there are 5,000,000 hens laying normally about 500,000,000 eggs a year.

Here's the way the Petaluma Chamber of Commerce has begun to boost for the national egg day:

"Every food product in the country has been advertised and recommended for its food value and war-time economy except the lowly hen's egg.

"Hardly a recipe written since the beginning of war-time economy mentions an egg. People have been doing without them and if we don't do something that will stimulate the eating of them they will continue to do without them.

Benefits of a National Campaign

"There being no doubt that a National egg day, by creating the demand for more eggs, will therefore double the output, which it is sure to do, will insure the industry's future on a good living basis, strengthen the government in its campaign for food conservation, serve a patriotic purpose, conserve and protect an industry of vital importance to the winning of the war, produce more eggs and more chickens for after the war for the warring nations, then we should get busy!

"If, as a result of national egg day, there will be more of a demand for eggs, which will naturally create more labor, bring more farmers, circulate more money, develop undeveloped land, make our people healthier by eating more eggs, make Petaluma a larger and greater city and California more prosperous by increasing the output from thirty-five million to seventy million, then every one should work for it.

Big Egg Fiesta

"If the results of a national egg day will sell more chicken feed, make more demand for egg crates, fillers, shipping cases, more incubators, produce more fertilizer, demand more chick cartons and more of everything in proportion to the demand made by doubling the output of eggs and chickens, then by all means rush our egg day!

"If, as we have decided that a national egg day is the beginning of a national campaign of advertising that will bring prosperity, which it will positively do, and we spend a little thought and energy and money to bring it about, and we will by so doing, put the poultry industry on the map where it belongs, then let's get busy immediately!"

The Petaluma Chamber of Commerce is spending $50,000 in an egg advertising campaign, including the big egg fiesta at Petaluma, August 31.

By spending this $50,000 Petaluma is doing a big thing for the State as well as for itself.

Every little while somebody in the Middle West or elsewhere writes to Orchard and Farm and asks if poultry would be a profitable venture in California. We used to dodge the question, but of late we have not been afraid to say that for the most part poultry raising in California is a very pleasant occupation, quite congenial to the tastes of quiet people and also very patriotic; but as for profit one would better look elsewhere.

Now, however, if the poultrymen are really going to wake up and put their industry on the map there will be better times for them

Good for Petaluma!

Burbank, a Man of Big Deeds

By the Editor of Orchard and Farm.

Mr. Burbank Out for a Drive

WRITING is at best a clumsy means of communication, what Carlyle called a mere "stamping of the forehoof." One finds in Luther Burbank as forceful and illuminating a writer as White of Selborne, and yet the plants and flowers of the famous Californian are a far better expression of his ideas than are to be discovered in his written words. And what a beautiful and perfect medium of thought, nay of rare and subtle suggestion, is such a flower as the wonderful Shasta daisy, visualized by Burbank long before it came to deck the earth with its white ray blossoms!

With most of us our ideals elude our most eager wishes, but with what rich fruition are they being realized by this prince of husbandmen who lives the poetry of the fields and who "thinks the thoughts that lilies speak in white!"

Truly he is a big man of big vision and big deeds. The Sonoma valley, in Central California, has been the scene of the life work of two famous men. To a superficial observer it might seem that Luther Burbank does not shine as an author any brighter than Jack London shone as a farmer, for they both alternated their activities in the manner indicated. But on closer observation it becomes manifest that Luther Burbank is a better writer than Jack London was a farmer, if such a criss-cross comparison be admissible.

His Literary Work

To be a steady reader of Burbank is to learn something. For over a year I have been editing for this paper his "New Plants to Feed the World," as the typescript came to me in monthly chapters. Editing in this case is little more than reading and approval, for who would be so bold as to alter a line in a work which, though perhaps not a literary masterpiece, is as original as Darwin's "Descent of Man?" In this as in all his pencraft—and first and last he has written voluminously—Burbank has a tremendous advantage over most of the writers of the present day, for he has something to write about—something great and worthy which compels attention because of the fresh observations and the real genius of the writer.

In reporting his horticultural miracles he indulges in no academic verbosity. His style is simple, direct and telling, and it smacks no more of the botanist than do the best passages in "Selborne." It may be said of Burbank's literary work as Emerson said of the essays of Montaigne: "Cut these words and they would bleed. They are vascular and alive."

Corner of the Burbank Portico

Burbank's Infinite Patience

What stands out most conspicuously in Burbank's horticultural and floricultural work in the field and is incidentally revealed in everything he has written about it, is the infinite patience of the experimenter. Take for example, his study of the prune. Nearly forty years ago it was suggested that the French prune, D'Agen, the one most commonly eaten in this country, had too much stone in proportion to edible flesh. Burbank, who ranges the world for material, had heard of an insignificant, half-stoneless bitter wild plum, growing in France on a thorny, straggling bush. He imported some cuttings of this plum and grafted them upon prune and plum trees. Fortunately some of the little cuttings lived and after a few years of waiting and watching blossoms appeared, and combinations were thus made with more aristocratic members of the plum family within the seeds of the resulting fruit From these cross-bred seeds, year by year, young trees were produced and from their branches grafts were placed in bearing trees.

What was the result of all this time, labor and expense? Nothing whatever but a kind of fruit all of which was perfectly worthless. As Burbank explains his failure: "The habit of producing stones had become so fixed in the heredity of all plums through untold periods of time that to change this fundamental characteristic would have been a genuine revolution and, as might have been expected, all had well-developed stones."

Now what would the ordinary experimenter have done in such a case?

(Continued on Page 27.)

Delta Success Story

By Harry Hammond

AFTER graduating from college and with really no agricultural experience, Clemente A. Bonetti, the young son of the late J. B Bonetti, has within a few short years established a splendid record as a farmer in the Delta country of Central California.

It was about three years ago when the senior Bonetti purchased an interesting tract of 729 acres of land situated just below I. L. Borden's great Victoria Island tract, with Old River Farms tract on the south and east and Coney Island on the west, in the heart of the Delta.

The active management was vested in the young man, who was filled with energy and action, and he liked the idea of tilling the soil. He began a close study of conditions and put his apt knowledge to good uses, with the result that he made a success as a farmer and won the high approval of his neighbors through the intelligent methods shown.

Mr. Bonetti has recently erected a comfortable new home on the tract, which is divided into two camps, everything being kept in the best of shape for good crops results. The new home overlooks Old River and is built on the levee.

The entire property is under a fine system of irrigation, with many miles of splendid drainage canals and ditches

Every acre of the tract is under intensive cultivation, even the sides of the levees being sowed to grain Water is siphoned, and affords an ideal system of irrigation.

As superintendent and owner of this property, Clemente Bonetti has secured splendid results, and this year —1918—a large acreage was planted to barley and a good harvest secured.

In 1917 this able young farmer harvested one of the largest yields of hay grown in the Delta sections, getting four tons to the acre on several hundred acres. On this same land he produced a double crop, planting the land back to potatoes, this proving splendid evidence of the richness of the soil on the Bonetti holdings.

A Corn Enthusiast

On the other parts of the tract potatoes were grown to fine advantage Mr. Bonetti shipped the first carload of potatoes in 1917 to the Stockton market, the sales averaging from $3 to $3.50 per sack. The yield was about 125 sacks of No. 1 and 25 sacks of No. 2 spuds, the latter being kept for seed, and used on a couple of hundred acres this season with splendid outlook for a good crop

In 1917 parts of the land were also planted to beans, corn and onions, with some celery, the returns being all that could be expected.

Mr. Bonetti's record in corn producing was most gratifying. He secured from the Sperry Flour Company at Stockton the prize for the lowest moisture content of any corn grown in the Delta. This young farmer is a corn enthusiast, as he realizes the possibilities of this product, under proper cultivation and treatment

Everybody Is Reading This Great Debate—Here Is the Third Installment

WOULD SINGLE TAX AID OR INJURE THE LAND OWNER?

Vivid Presentation of Each Side of the Great Question by the Leaders of the Two Armies of Voters Who Are For and Against the Amendment.

It Would Injure All Industries

BY ALBERT E. KERN,

President Anti-Single Tax Association of California

THE Single Tax has been advocated with devotion by men of the highest idealism, who regarded it as a sacred cause in which they have not hesitated to spend their strength and their means. Henry George confidently believed that the carrying out of the Single Tax program would usher in the economic millennium. He believed that it would "solve the labor problem, do away with involuntary poverty, raise wages in all occupations to the full earnings of labor, make overproduction impossible until all human wants were satisfied, and cause such enormous production and such an equitable distribution of wealth as would give to all comfort, leisure and participation in the advantages of advancing civilization."

"By their fruits ye shall know them" is an excellent rule to apply to institutions and laws. DOES private property in land promote the general welfare?

There are many forms of land holding; in no two countries is the form exactly the same. In Europe land ownership is the basis of aristocracy; in the United States it is the foundation and cornerstone of democracy.

The institution of private ownership of land, as we know it today in California, is of almost pure American origin. There is no deed to land anywhere that is so complete, full and free as that conveyed by United States land patent. The only limitations to which it is subject are: The right of eminent domain, a right exercised sparingly, and always with full compensation; and the duty to pay taxes, a duty falling on all other property and on all persons as well as on the land owners. Land ownership in America confers no immunities nor dignities, nor have any such grown up around it.

The European Land Struggle

In Europe the struggle has been to sweep away the aristocrat, as landlord and put the land in the hands of the users as landowners. The struggle has been to approximate a state of things which we have most fortunately enjoyed from the beginning. The struggle in Europe was not to confiscate property by a high taxation, thus placing its ownership in the hands of the State, but simply to enable the common people to acquire it. It is only in the lifetime of the present generation that the former Irish peasant, for example, has had even a chance to own the land he tills, to cease to be a peasant and become a landowner. We are told that this line of land reform in Ireland has had a well-nigh magical result in the advance of welfare in that country. Save for the trivial relief from other taxes, would the Irish peasant be any better off paying rent to the Government than he was when paying rent to the landlord? Under the new system he has his heart in his tillage; now it is HIS land, to be loved and cared for and improved in every way possible. If it increases in value, the increase is his, and there lies the incentive to help make it increase. He thus becomes active in all good works for the upbuilding of the community.

Present Land System Is Fair

In our own country the possibility of acquiring land, of full private property in land, has enabled us to summon and assimilate into good American citizens people from the ends of the earth. Among them have been a multitude of the "discontented and down-trodden" of less happy nations. These are now the home builders and home owners who constitute the backbone of the nation." Would the freedom of our democratic institutions alone, unaided by the precious privilege of owning land, have laid as secure a foundation for our national life? If men could have earned only their wages, and interest on their capital by going on the land, would [illegible] have gone there?

We [illegible] it that instead of being

(Continued on Page 24.)

It Would Develop Our Resources

BY LUKE NORTH,

Vice President of the National Great Adventure for Single Tax

THIS debate was first announced under the title "Would Single Tax Aid or Injure the Farmer?"—which is quite a different question from that raised by the caption under which it is being published, "Would Single Tax Aid or Injure the Land Owner?"

There is a great difference between owning land and farming it—the difference between use and speculation, the difference between adding wealth to the common fund and absorbing it.

Sometimes the farmer owns the land he cultivates, and then he reaps, or at least has the basic chance to reap and reap for himself, all his industry and care can produce. There are not many farmers who own the land they use and of the few who do own it, about 90 per cent are heavily mortgaged and much of their harvest must go to pay interest.

The tenant farmer must work first of all for the landlord, and that he has very little left for himself, sometimes nothing at all, after the landlord is paid, is rather well attested by the 20,000,000 idle fertile acres of California and the acute poverty that prevailed in the over-crowded cities before the world war so greatly changed economic conditions.

Evidently it is very difficult, impossible for all but a few, to get a decent living as a tenant farmer in California, or these acres long ago would have been under the plow—for it is natural and certain that human population follows the line of least resistance and flows where food and supplies can be most easily obtained.

Most Normal Men Are Land Hungry

It is also true that most normal men, at least in some period of their lives, have a deep hunger for a bit of earth they could call their own, on which they could build a home, have a garden, or a farm. And where is the normal mother who would not bring up her children among the flowers and green things, the birds and sunshine and pure air of the open, if she could? The passion for direct contact with the soil is instinctive. Only land monopoly defeats it, thwarts it, denies it—and by land monopoly is meant the "owning" by one person of more land than he uses.

Of course no one owns land in a real sense. His ancient, feudal, fee simple title thereto merely gives him the "right" to exclude other people from it. Is it a "right?" We thought so in the old days, just as we once thought it right to burn witches and to own slaves.

A Dangerous Privilege

This unlimited title to land is not a right, but a privilege—a vicious, dangerous privilege that has brought Christendom to—this world war against privilege and for democracy.

What can Mr. Kern mean by "democracy" when he says the unlimited ownership of land in "the United States is the foundation and cornerstone of democracy?"

Evidently not that self-determination, that right of every person and nation to determine the conditions and affairs of their own lives so long as they do not infringe on the equal rights of all other persons and nations.

A good deal less than 10 per cent of the population of California owns all the assessed land of the State, which means that these few landowners have the power to say to over three million men and women: "Keep off that land! It is idle, unused, vacant land, and it is all there is in California, but you keep off it—or pay our price for going upon it. We do not need it, we can't use it, but you who do need it and would use it, cannot go upon it save on our terms—and these terms are that you shall pay to us, in rent or by installment purchase, all you can earn on it

(Continued on Page 30.)

Our Single Tax Debate

THE Single Taxers are preparing for a big drive this summer and fall. They polled over 260,000 votes in California in 1916, and they say that they will poll 70,000 more at the next election and win the State.

Do the farmers want taxes levied on land values alone? What are the arguments for and against Single Tax? Orchard and Farm is publishing a great debate on the question:

Would Single Tax Aid or Injure the Land Owner?

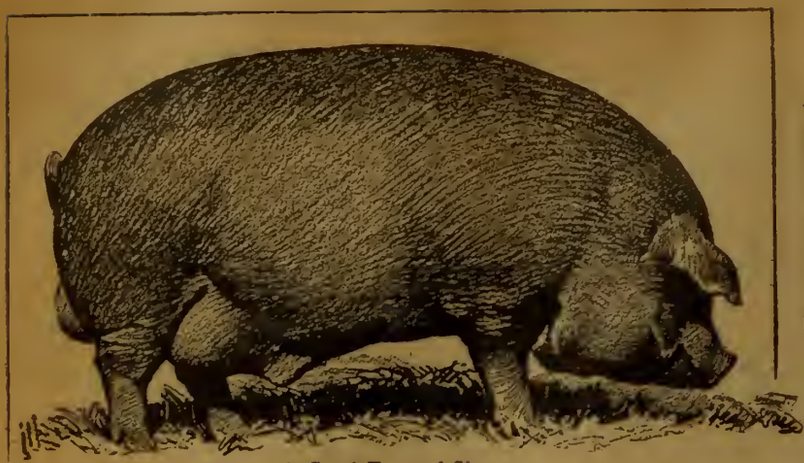
Luke North, vice president of the National Association known as "The Great Adventure for Single Tax," puts the case for the Henry George theorists, and Albert E. Kern, president of the Anti-Single Tax Association of California, replies. In the next number Mr. North will argue against the opponent of the George theory and in turn will be answered by the Anti-Single Taxer. And so the debate will continue back and forth up to election time, the last installment to be published in the November Orchard and Farm.

Anyone who owns land will of course be affected by the proposed Single Tax amendment to the Constitution of California and, therefore, will want to read every word of this great debate.

All voters, and particularly students of political economy, will also find the controversy a highly interesting and educational one.

Being vital to our farmers, the facts set forth in this debate will be closely perused by them.

If you are not a subscriber to Orchard and Farm send 25 cents now to this office and thus secure all the numbers containing this tremendously important feature—a liberal Single Tax education in itself. Do this today!



A Good Type of Sire

Helpful Hints to Hog Raisers

LITTLE capital is required to produce a few hogs, and the profit comes quickly.

There is a place on every farm for at least one sow and her pigs, because there is waste feed that they will consume. Preventing waste and producing pork is doing double service

Careful management and feeding of brood sows and pigs is the way in which the wise hog grower doubles his chances of a good profit in finished hogs.

Hogs are good scavengers but don't force them to prove it. Give them a chance to prove it.

Raise two crops of pigs a year. It is a common practice in eastern and central States. California conditions are more favorable than those of the east for this practice.

Use the best boar that you can secure.

Have the sows in gaining condition but not fat at breeding time.

Feed the pregnant sows well, but don't get them too fat.

Exercise Necessary

Plenty of exercise helps to prevent excessive fatness in brood sows, keeps the boar in good condition, and assures good growth in well-fed pigs.

Provide clean, comfortable quarters for the brood sow, especially at farrowing time. Individual houses are cheap and handy to move about.

Arrange to have the sows farrow early. The early pigs usually have the advantage of a better market.

Give sows that are suckling pigs plenty of milk-producing feed. The cheapest gains are made by young pigs

Feeding alfalfa hay in racks is good practice when the pasture is gone. Try this for the brood sows. Feed cattle and sheep the coarse stems left in the racks. Nothing is then wasted.

Alfalfa meal fed to breeding hogs helps to save high-priced grain. Don't force them to eat too much of it. It is bulky and hard to digest. One-fourth to one-third, by weight, of the ration is about right.

Don't feed milk from tuberculous cows.

It requires five or six pounds of skim milk to equal one pound of grain for hog feeding. Whey is worth about half as much as skim milk. Buttermilk not diluted is equal to skim milk.

Sour skim milk gives the same results as sweet skim milk in hog feeding.

Skim milk has its highest feeding value when fed in limited quantities with grain or mill feed. Three or four pounds of skim milk to one pound of grain is the best proportion for shoats. Four to six pounds is better for small pigs, as they need more protein.

The most desirable market weights are between 200 and 250 pounds. Good hogs should be ready for market at these weights when six to eight months old.

The most profitable gains are made by the young pigs. It pays to give them a chance to get to market early.

A well-filled self-feeder and a thriftly shoat make a combination which is hard to beat for quick returns, large profits, little labor and diminished risk.

Tankage and wheat middlings are the best protein feeds to use with the grains in a self-feeder. Cocoanut meal may also be used with success but it is not so palatable as the other feeds.

How to Increase Pig Profits

Valuable Suggestions to Swine Raisers

URGENT, pressing, almost frantic are the appeals of the Food Administration for the production of more and still more pork.

By its pig clubs, by its newly organized livestock associations and in many other ways, California is heeding and responding to the Government's S. O. S. call, but despite everything that the really patriotic swine-breeders are doing, there has been a great falling off in pork production.

By the latest report of the statistician of the State Board of Horticulture, California had on its farms in 1917 only 974,000 swine as compared with 994,000 in 1916. This year we shall probably produce a greater number than last, but it will be inconsiderably greater. We are not raising within 60,000 as many hogs as we raised in 1886, thirty-two years ago!

We will probably send out of the State over $40,000,000 for pork and pork products to feed our own population. We sent out over $30,000,000 last year and about the same amount the year before.

Our people are paying as high as 70 cents per pound for eastern bacon which we could just as well raise at home and save freight in these stressful railroad times.

Hogs will return a profit at present prices of feed and pork if they are fed the proper rations.

As D. O. Lively said in an address at Fresno, the man who makes money out of his hogs is not the in and outer He is the man who makes swine growing a part of his regular farm output and so arranges that he will have some coming on all of the time The swine output from the farm should be regulated in a similar way to the dairy output. The coming of litters should be fixed so that there will be something ready for the market every month in the year

There are so many factors that enter into the problem of feeding hogs that nothing short of a book or bulletin on the subject would give the information, but in a general way the experience of an extensive grower and feeder in California covers the ground.

How to Feed Hogs

This man feeds his pigs a pound of grain a day from the time they are big enough to eat until they weigh one hundred to one hundred and ten pounds. This pound of grain a day is in addition to the alfalfa they graze After that time he puts them up and for thirty days feeds them all of the grain and tankage they will eat. At the end of thirty days his hogs are ready for market, weighing from two hundred to two hundred and twenty-five pounds. Needless to say, the farmer makes money out of hog-raising.

It is poor business to let them run on the alfalfa fields. He says that the damage they do the growing alfalfa makes it a good investment to cut and grind the alfalfa, which he feeds them.

In a recent letter to me on this subject, he wrote as follows:

"I use a number of different concentrates at different times during the year, depending upon the market values.

A Nutritious Mixture

"To my fattening hogs I am at present feeding a mixture as follows: Thirty-seven per cent rice, bran and polish (mixed probably about 3 to 1), 25 per cent milo maize, 25 per cent cane black-strap molasses, 10 per cent alfalfa meal, 3 per cent tankage.

"I fed the above mixture in the form of a slop with water and milk allowing no less than two quarts of milk per hog of any age. I feed more skim milk when I have it, but with the above mixture I consider two quarts of milk per hog per day sufficient. Sometimes I feed barley, Egyptian corn, cocoanut meal, pumpkins, melons, etc., keeping the ration fairly well balanced.

"When my brood sows are suckling pigs I feed them very much the same as I feed my fattening hogs, with the exception that I feed them a little more alfalfa meal

Feed for Sows

"To my brood sows carrying pigs I feed a mixture as follows at present: Sixty per cent alfalfa meal, 17 per cent rolled barley, 10 per cent rice, bran and polish, 10 per cent cocoanut meal, 3 per cent tankage

"I feed this mixture dry twice a day and feed nothing else. My average gain on pork hogs is at least [illegible] pounds per day, on hogs between [illegible] and 160 pounds Feed per 100 pounds of gain is very close to 400 pounds of the mixture besides the two quarts per day of skim milk.

"My brood sows keep in very good condition on from four to five pounds of this mixture while carrying pigs.

Good thrifty pigs weighing [illegible] fifty to seventy-five pounds may be made ready for market in ninety or one hundred days if fed the self-feeder way

Yes, Our Family Is Growing Apace

WE FIND that a whole lot of people read and seem to enjoy these little talks by the editor with his family.

It's the right-up-close, look-you-square-in-the-eye kind of conversation that counts, as everybody knows, and these talks are of that confidential order.

Some people may think they are a little too confidential, but if you don't make confidences how are you going to make friends?

Friends! Are they not the most valuable assets in the world?

You don't know how we value the beautiful letters we receive from our subscribers all over the country. Most of them say such nice things about Orchard and Farm. Occasionally we get a knock, but it's generally from somebody that doesn't appreciate the fact that we are trying to do our best and that we can't always print just the particular kind of article that this particular person is interested in.

One man in Altadena, Cal., wanted to know why we didn't print more about avocadoes. He is interested in avocadoes and can't understand why everybody else isn't. We replied that if he or any of his neighbors knew anything new about avocadoes to send it right in and we would print it. He hasn't answered yet.

That's the way it goes. It's hard to make people grasp the fact that we can't be printing everything about their particular industry every month, but the wise members of our family understand this and make no complaint.

By the way this family of ours is growing pretty fast. In the past two months we have added over 4000 new names to our list of subscribers, and they keep coming in every day.

It might seem rather funny that a sea captain would be interested in a farm journal, but the other day we received a letter from Captain H. R. Bodge of the steamer Northland, en route from San Francisco to Seattle Captain Bodge lives in Haywards, Alameda county, Cal., and is interested in poultry.

"Your paper is certainly interesting to read during my spare time at sea," writes Captain Bodge. "Poultry first, also fruit and garden articles and the balance. It is hard to get reliable facts regarding poultry Please keep up the good work."

You know who Tumulty is—Tumulty of the White House? Well we got a letter from him the other day in which he said that President Wilson had asked him to thank us for a lot of information we sent telling him what the Pacific coast farmers were doing to help along food production. He said the President liked our letter and its heartening assurances as to the way our ranchers were standing by the administration.

Then there was another letter from Washington—a nice note written by Herbert Quick, the Federal Farm Loan Commissioner, saying he was going to reproduce an editorial of ours on Farm Loan Bonds in the Federal Bulletin. That made us feel good, too.

And so did the letter from Will B. Goodrich, treasurer of the Moco Laboratories of Oklahoma.

"I really think," said Mr. Goodrich, "that Orchard and Farm is the most ably edited farm paper of my acquaintance, and I know a lot of them."

Then from away up in Dawson, on the Yukon river, John Hudson, who says he has read every issue of our paper for the last enighteen months and also several other agricultural papers, sends down a heartening note. "Yours," declares Mr. Hudson, "is far and away the best of them all." After which he adds "Hope this don't give you the big head, but I always boost for your paper."

No, dear John H., it doesn't give us the big head. We take what you say as from one member of the family to another.

We like these letters from out-of-the-way places and from uncommon people, but we love just as much those from common people in common places.

In fact our family is a mighty interesting one from any angle you look at it.

My Success With Goats

By L. A. Bridinger,
Of the Bralef Stock Ranch, Santa Rosa, Cal.

TEN years ago few men could foresee the prominent place the milch goat would hold in the public eye today. No man could foretell the present war, involving most of the countries of the world, with the necessity of conserving food and the resulting high cost of living, all of which have forced "the poor man's cow" upon the attention of the public.

In 1911 I was obliged by ill health to leave San Francisco. I located on a small ranch near Healdsburg. My newest neighbors were interested in milch goats, having spent much time in Southern California where the milk was much in use in sanitariums. From a breeder in the south they had obtained a pair of kids and from the same breeder I bought my first two goats, Blanchette and Suzette.

My first ventures were enough to discourage anyone. Blanchette was represented to me as a three-year-old animal. She had been badly treated, was timid and nervous and nearer ten than three. Suzette had never been milked, was taken away from her kids, shipped without milking and arrived in a nervous condition from which she never recovered. I always had to strap her to the stand to milk her, and how she did bleat! The neighbors must have thought I was killing her. Suzette, however, had one virtue a long period of lactation and by drinking her milk I gained over twenty pounds in three months.

In my second venture, after answering an advertisement in a reputable farm journal, I received neither goats nor my money back until I placed the affair in the hands of a lawyer. I tell this that it may be a warning to others as ignorant as I was of goats, and goat breeders, to be careful of whom they purchase goats and let it be only of reputable breeders.

In 1912 I moved to Santa Rosa, taking Blanchette and Suzette with me. Suzette was still milking, but Blanchette did not come into profit until 1913.

My Saanen Buck

I had written to some Toggenburg breeders with the idea of buying stock, but found their prices beyond my then very slim purse. Early I learned the importance of using the best buck obtainable, and as my two does were white and I had read that the Saanens were white goats and that the Saanen buck, bred to the common white goat, would make a fine grade goat I decided to buy a purebred Saanen buck. I purchased of a prominent Kansas breeder Mont Blanc 433; he was a fine buck, all and more than the breeder represented him to be and he has sired some very fine milkers.

So far my bucks have paid for themselves in the service fees. Goat owners must learn that the buck is half the herd, and that they should use only a purebred registered buck of good milking strain. Breed a grade doe to such a buck and in nearly every instance the kids are superior to their dam, use a scrub buck and the kids will be inferior. The best buck is none too good, and if does are born the sale of one will more than pay the service fees.

In the fall of 1912 I bought Crystal May 420, A. M. G. R. A., a weaned doe, the next year a second weaned doe kid, and in 1914 my buck King Franz, 915, and these four purebred animals and some grades have formed the foundation stock for the Saanen herd of the Bralef Stock Ranch.

It was, however, in 1912 after reading all the obtainable literature on milch goats and corresponding with some of the breeders that I made up my mind that a man could not make a mistake by investing his money in milch goats, that the day must come when the little animal that gave such rich, pure milk and could be fed for such a small figure, and kept in the city limits in a small backyard, would surely be in demand.

I was able to convince my life-long friend of these facts, and with one buck and several grade does kept in a backyard 20 by 30 the Bralef Stock Ranch started business.

Town Goat Troubles

Before I purchased Pegler's "Book of the Goat" I learned by bitter experience that a buck of either of the Swiss breeds can not be kept in town, for two reasons—first, during breeding season he emits a most unpleasant odor; second, a good buck is a big fellow weighing from 180 to 200 pounds and over and should have plenty of room for exercise, and should never run with the herd or be kept close to the does.

O course I never tired talking goats' milk, its purity and richness, and relating the fact that it had given me health, flesh and strength. So before Suzette came fresh I had arranged with my next neighbors to let them try the milk as soon as I had some, for their puny, sickly baby.

I sold milk all that summer for $5 a month for a quart a day and where my boy delivered it he was paid for delivery. Later I received 25 cents for every quart. I never intended to go into the dairy business. My object has been from the start to raise and sell fine stock. I never solicited milk customers, but when people came to me for milk for babies or invalids I have never felt that I could refuse them, and at such times the sale of milk has more than paid my feed bills.

The first season's kids were discouraging—all bucks and all grade bucks, of no value at all, except for meat, and during that period I did not have the time nor the room to raise them so they were put out of the way. But let me say here that buck kids can be eaten when about four weeks old and are most delicious. A buck kid can be castrated, killed when a year old, hung the necessary length of time to make tender, and it is difficult to tell the meat from mutton.

Ten Milking Does

In the spring of 1913 I had to move I found a desirable house for my family, with a large yard. I fenced off a part of the place, thus having a yard for my goats 18 by 35 feet. In this yard I have had as many as ten milking does. I had an exercise platform about five feet high. The top was four feet wide and five feet long. This top was reached by inclined boards. On this platform the goats played and rested. In my shed I had six single stalls and two box stalls which I used for does when kidding.

Suzette, on Bridinger Ranch Near Healdsburg, Cal.

Finally I got rid of chickens and pigeons and used other sections of my backyard for the goats and here I got together by breeding, selling and buying, the herd now on my ranch.

Blanchette and Peggy were two old animals out of which I never got my money, but in almost every other case I have doubled the money invested. The sale of milk can be made to pay the feed bill, or if one does not desire to sell milk, cheese can be made which brings from 50 cents to $1 a pound. Some of this cheese is hard to distinguish from imported cheese.

During all the time I have had goats we have had plenty of milk for our own use, sometimes butter and in the last two years cheese, which can be made when milk is plentiful and stored for the winter.

Some Good Literature

Many of the breeders who have owned goats for a number of years in America have been doing pioneer work, certainly much that they have done has been guess work as to the best methods. There were certain facts and principles handed over to us by the English authority, Holmes Pegler in his "Book of the Goat," which I have found invaluable in my experience.

Since 1915 there has been a monthly paper devoted exclusively to the milk goat industry. It is a sort of open forum in which all the breeders are at liberty to present their ideas and experience and it has become a very helpful paper. The University of California has been experimenting with goats for some time and has recently issued a bulletin on "Milk Goats in California," helpful to breeders, but especially valuable for the novice.

In one year's comparative tests of goats and cows at the university farm at Davis, it was found on the same feed that it was possible to provide milk 23 per cent cheaper with the goat than with the cow.

There are two Swiss breeds, the Toggenburgs and the Saanens, and an English breed, the Anglo Nubians. The first two came originally from the valleys of those names in Switzerland, and the Anglo Nubian goat is cross of the Nubian or Indian goat on the common English goat and the Swiss Toggenburg in England.

The Swiss breeds are the heavier milkers and the Anglo Nubian does give the richer milk.

They Are Hardy

Goats are hardy animals and generally have their young easily. A doe carries her young five months having from one to four kids. She is an interesting animal that repays every bit of your attention

Two does kept for family use will pay for themselves in the quantity of pure milk which they give, rich in butter fats and free from tubercular germs. Even with the high prices of hay and grain it is cheaper for a family to keep a couple of good does than to buy cow's milk.

A cow cannot be kept in a small space. She costs more to keep than a goat, and a cow and her barn are much harder to keep clean, while she generally gives more milk than the average family can use.

Two does should give more milk than is used now by the average family. Milk contains the body-building material needed to give energy for life work and is a cheaper source of energy than meat and now that we are asked to conserve the supply of meat in the United States, more milk should be used instead of less.

I felt confident that the day must come when there would be a great demand for milch goats I saw the beginning of the increased population in San Francisco and the increase of suburban life, the natural return of man to the soil, and to the life in the open, from the closed offices and the shut-in apartments. I saw the increasing price of cow's milk with the question of its purity, as it came from the big dairies and I felt assured that the milk goat industry had a great future in the United States, and that the man who had foresight enough to get a start with a herd before the demand exceeded the supply was a lucky fellow

Save Orchard and Farm's Best Articles

ORCHARD AND FARM suggests that its readers who see some particularly interesting articles in its columns should clip them out and file them away.

Articles of intense interest relative to successful experiments in all lines of husbandry appear in this publication. For purposes of ready reference, some of our readers clip these articles out, and in the course of time have amassed under the various subdivisions a vast fund of information of the utmost value.

If they trust to memory, they forget the issue in which the article appeared and to find it have to search through many copies.

Problems That Confront the California Citrus Grower

Cost of Orange Production Greatly Increased

By Henry G. Tinsley

HALF a dozen problems vital to the orange and lemon industry confront the California growers. When one considers that the invested capital in orange and lemon growing in California, with closely allied industries, reaches almost to $100,000,000, the need of the best brains in the horticultural world to solve these problems is seen.

For instance, there was the voracious, cottony, cushiony scale of twenty-five years ago. It threatened the life of every citrus tree in the State and terrified the growers for two years. Entomology was called in and the Vedalia cardinalis was brought from Australia to eat up the scale. Presto, and the whole pest was eradicated as rapidly as it had appeared. The orange and lemon industry was languishing twenty years ago. No sales for the fruit, growers going broke, no new groves planted. Commercial talent among the growers was called upon, and the California Exchange was born out of the distressful times. The industry not only revived, but it has been the wonder of the world in profit and allurement The method of applying hydrocyanic acid gas under tent cover, destroying the black scale (Saissetia oleal) was devised out of the alarm of the growers that the scale would consume the life sap of their trees.

June Drop Not Yet Solved.

First of all in degree of seriousness is the annual June drop problem in every orange grove. It concerns citrus orchardists in all parts of California. Ever since orange growing became a commercial enterprise the June drop has caused distress in the grower's home. Dr. J. Elliot Coit, an eminent authority, finds that the annual June drop diminishes the annual production by an average of $1,500,000. It has cost the orange industry at least $50,000,000 in the past thirty years. It cost the industry two-thirds of a normal crop only a year ago, and this season it has already cost the growers fully $5,000,000 more in sales of their matured crop for next season.

Last year it was excessive sun heat that caused the worst wholesale dropping of tiny oranges ever known, 85 per cent in many localities.

Last spring horticultural authorities at the State University announced that a cure for the June drop had been found. It was promulgated that by planting a cover crop of alfalfa or peas or vetch about the base of the orchard trees, the June drop would be effectively checked. Hundreds of growers did it. The annual hot spell of June came on. The growers sat back, contented that they had at last found a panacea for all the drop ills, but the drop was severe just the same. No grove escaped. At the last meeting of the San Gabriel Horticultural Club the June drop was reported at 50 per cent in most groves. In the Porterville district the dropping of fruit was 60 per cent. In the Sacramento Valley 60 to 90 per cent.

Fertilizer a Big Problem.

What are the growers going to do for fertilizer to their groves? This is the most serious of all problems in interior citrus districts. The popularity of the automobile and the auto truck has curtailed the best and cheapest of all orchard fertilizers—barnyard manure. At the same time demands for fertilizers have waxed immensely as the citrus industry has spread out, and the trees have grown older and called for more fertilizing. Twenty years ago most Southern California growers got all the stable manure they wanted for merely carting it away. Blood and bone fertilizers sold for about $60 a ton up to the breaking out of the war in Europe. Today the same fertilizer sells at double that sum and in some instances even more. All manner of nitrates have increased 150 and 200 per cent in cost. There is no sign that they will be cheaper in the coming years. This is a problem that the agricultural chemist must settle.

Also, what are the growers going to do about orchard heating or smudging? In a dozen communities, where orange and lemon growing is the main resource, laws have been passed that no more smudging with oils shall be permitted. Besides, the growers in large numbers are debating whether orchard heating, or, what is popularly called smudging, is worth while.

In Pomona Valley statisticians find that the cost of smudging an acre of orchard averages $55 a year. This is reckoning the cost of labor to keep the smudge pots in operation, the cost of crude oil, which has advanced 46 per cent during the past two years and is still advancing, and the depreciation of orchard heaters made of steel. The Pomona Fruit Growers' Association has prepared tables showing the average damage per acre to orange and lemon groves in that locality during the past thirty-two years. These tables show that the injury to fruit per acre has been $53 a year, counting the two severe losses by the freezes in 1911 and 1913. Orchard heating has been practiced in Southern California very generally for seven years. The heaters are now becoming rapidly worthless by leaking seams and holes. The cost of replacement will be over 150 per cent the original expense.

Discarding Orchard Heaters.

In Redlands the use of orchard heaters will be almost wholly discarded during the next winter months. It has been found that the cost of maintenance is not commensurate with frost losses during the period of the life of the smudge pots. In Porterville, the Chamber of Commerce has asked the growers to discard smudging operations on the ground that they serve no useful purpose except in very extremely cold weather, which has come only once in the life-time of the citrus industry in California.

Another problem that is bothering orange and lemon growers is how to rejuvenate trees which are beginning to show their ages by a diminishing crop production. The skillful horticultural talent is making valuable experiments in this line. The oldest seedling orange trees in California groves have been bearing about forty years. The oldest navels, found in the Riverside district, are 35 years old. The oldest lemon trees are about 33 years old.

It has always been a mooted question in horticultural circles how long an extensively cultivated or thoroughbred tree will bear crops in fruitful quantities, providing the tree is given unusual care and is fed liberally. There are in the Azores orange trees that grew wild there, and that are known to be over a century old. In Sicily the age of the numerous native lemon trees is about 50 years, but there is a wide difference between indigenous and exogenous trees and shrubs anywhere in the world.

Navel Trees Show Age

Seedlings in California planted in 1876 and 1878 stand the test of age productivity well. Navel orange trees in every locality are beginning to show their age in the widening number of "off" sizes of fruit, and more particularly in constantly diminishing yields

But the older lemon trees, most of all, show signs of age. They are yielding an excess of small sizes, sparse foliage, indecisive blooming, numerous leafless fruit spurs on the inside of the tree and a tendency on the lower boughs and inside twigs to chlorosis.

Up in the famous Limoneira district of Ventura County the problem is being solved by an elaborate system of pruning along entirely new ideas. It is so done that the effects of the several scientific pruning methods of rows of trees may be observed and the rejuvenating effects noted in production during several years succeeding the operations. Records of the fruitfulness of the pruned trees are kept. The assistant manager, J. D. Culbertson, of the Limoneira ranch is certain that he has found a means for bringing the trees back to pristine fruitfulness. In San Diego County the lemon growers are solving the problem of renewing their lemon trees by mulching and omitting the feeding of fertilizers to groves of 25 years of age and older. Mr. Culbertson has had such marvelous success that he is now announcing his experiments to the citrus world.

Fumigation Very Costly

Fumigation is a larger monetary problem than ever before. Farm advisers in the chief citrus counties are giving extra attention to the problem whether to gas or to spray in these times of cost of chemicals soaring skyhigh. This season of unusual coolness and cloudy skies is conducive to the rapid propagation of black scale. A year ago, in the summer of uncommon heat and a prolonged period of sunshine, the black scale was held in check, and now that the pest that saps the life of a citrus tree is becoming more prolific, the cost of all materials composing fumigation has advanced several hundred per cent since the war in Europe began.

The Pomona Valley Fumigation Association, for illustration, finds that it costs now to gas 1200 acres of orchards over $80,000. The labor expense bill is $19,250, and the cost of cyanide alone is $53,730, while the bills for canvas tent coverings, for acids and for overhead expenses have gone up enormously

Freight Rates Reduce Revenue

Still another problem that is bothering the growers is the horizontal advance in freight rates across the continent. On June 25th new rates went into effect as a war measure. No one doubts the justice of the raise, or the need of the advance in cost of transportation in war times, but just the same, the increased rate of 32 cents for 72 pounds of fruit in going to make some holes in the calculations of the California Fruit Exchange for its year's business from now on.

It is estimated that the new charges will add $7,745,000 to the cost of moving a normal crop of oranges and lemons from California. Officers of the exchange doubt the ability of the industry to absorb the increased expense, and they have filed a formal protest.

Worries over various scale pests have so often bothered citrus growers in California and Florida that they have become used to information of some new scale that may come this way and annihilate the fruit industry

The Argentine ant, said to be the most dangerous insect of the ant family that has ever invaded this country, is creating a serious problem for citrus growers in the Upland and Cucamonga districts The Argentine ant has already created such alarm among the orchardists in and about Upland that Dr. A. D. Borden of the United States Agricultural Department has been called to investigate the plague and to devise means for eradication.

In Argentine the ant has been a national pest for half a century It has been a chief cause of checking fruit growing in that country The same ant has caused the ruin of deciduous orchards in the New Orleans region, and has become so pestiferous that whole blocks of residences have been vacated Colonies of the Argentine ant have been found in Azusa and Pasadena

We Want New Farming Facts

ORCHARD AND FARM asks you to send in little stories of experiments you have made in farm work that proved of value to you, and also accounts of unsuccessful experiments that would be a guide for others.

We want Orchard and Farm to be a meeting place of the farmers of the Pacific Coast, where they can exchange experiences and profit by such exchange. Practical farmers everywhere are continually devising some new wrinkle as to cultivation, or irrigation, or fertilization, as well as schemes as to livestock raising. A practical farmer's ingenuity frequently results in the production of an idea of practice as valuable as that evolved by a professor of agriculture.

All of these communications will be saved. The best will be printed, and at the end of a year a committee will pass upon them. This committee will be from the California College of Agriculture, as follows:

John W. Gilmore, Division of Farm Management.
Gordon H. True, Division of Animal Husbandry.
C. L. Roadhouse, Dairy Industry Division.
J. E. Dougherty, Poultry Division.
W. L. Howard, Division of Pomology.
Frederic T. Bioletti, Division of Viticulture.
Frank Adams, Irrigation Division.
H. J. Webber, Director Citrus Experiment Station, Riverside, Cal.

The communication that is regarded by the committee as having proved of the most value will be awarded a prize of $50. The one second in value will receive a prize of $25. The third in value will receive a prize of $15. The fourth, $10, and the fifth in value, $5.

Write to Orchard and Farm as briefly and as clearly as possible, so that there can be no mistake as to your meaning about the original thing you have developed that you regard as having been of the greatest value to you and your farm.

System on Your Ranch

THE man who gets rich by ranching in California is not always the man who is breaking his back all the time at some hard job or other. Once in a while you see a man who, to all appearances at least, is taking it easy and yet making a barrel of money. These are the fellows who think and who have a regular system of doing things.

There are plenty of such farmers all over the country. One of these is Harry C. Leidy, who has a farm near Carthage, Mo., and who, according to the Farm Journal, even trains his hogs to open and shut the pig-pen doors.

All over his farm, from kitchen to field, are little devices to prevent overwork and useless expenditure of energy. Leidy is considered a miser of time and energy, though not of money, for these short-cut, easy-doing methods have made "a good living and 10 per cent" for him by giving him more time to use his brain.

The doors to the hog house swing from hinges at the top. A hog going in or out puts his nose against the bottom and pushes and the door swings up and inward or up and outward and drops back into place, scratching the hog's back while he walks. The door always is shut and the house warm in winter.

It is natural to suppose that a farmer who takes this trouble with doors has a loading dock. Leidy considers his back to valuable to wrestle with a hog.

He never lifts a wagon-bed or hay-rack off or on a wagon. A rope is fastened under the wagon-bed in a sling. Then he raises the bed slowly and easily with a windlass, made from parts of an old binder and a gas-pipe. He slips some crossbars under the wagon-bed and leaves it in the top of the machine shed. Then he moves the wagon over to the other side of the shed under the hayrack and lets the hayrack down on the wagon by the same windlass.

He used to flirt with the pump-handle. Now a gasoline engine does the work, the arm muscles being conserved for something more profitable than watering stock. And the gasoline engine is no doubt the biggest time-saver about the farm. This engine does the hardest part of the washing—takes the blue out of Monday. And it does other stunts.

Across from the modern farm home, reached by a covered walk, with a concrete floor, latticed and vine-covered sides, is the Leidy workshop and power plant, one of the most valuable parts of the eighty-acre farm. When the Leidys built their new home, the old house was made into the power and work plant.

In the first room is the washing-machine, geared to and driven by a steel rod or drive shaft that runs through the three rooms, near the ceiling. An ordinary inexpensive hand washing-machine with a large balance-wheel was converted into a power washer. The balance-wheel rests against a wooden pulley connected by belt to the drive shaft. This pulley was made on the farm out of two boards nailed together with the grain crosswise and faced with a piece of old rubber belting to give it the friction that turns the balance-wheel. When the washing-machine lid is lifted the machine stops automatically. An old cook-stove heats the water in the laundry.

Leidy says his blacksmith shop has saved him many half days in busy times.

"Cost is nothing," he says. "if you count the savings." The five-horse-power gasoline engine, pump and pipe to convey water cost $275. The other pieces have been added since, one by one, and by making power pieces out of hand pieces the cost has been exceptionally low.

This farm family does not consider such improvements luxuries, as so many do, but necessities to make the farm both livable and profitable. A bathroom in the house and building a cesspool cost little, for Harry Leidy did his own plumbing. He also built a refrigerator of wood, making double walls and stuffing them with sawdust. The cost was less than $5, but it is large enough to hold a large can of cream and a quarter of beef or a dressed hog.

Pays to Get Rid of Stumps

ON THE Pacific Coast and in the South a good many farmers leave stumps in their fields because they think it costs too much to take them out. If they did a little really close figuring they would find that, in nine cases out of ten, they are mistaken. Even at present prices of explosives, blasting out stumps is not really so very expensive and it will pay well in the long run.

In the first place, if the stumps go into the woodpile for fuel, much of the first cost of removing them is saved then and there.

A correspondent writes to Orchard and Farm that he cleared out 365 stumps in six days. The stumps ran from eight inches in diameter up to five feet. He used in all nearly 200 pounds of dynamite and 400 caps. The dynamite cost about 25 cents a pound and the caps 3 cents apiece.

Nearly every novice in the stump-blasting game puts in too big a charge when he tries to blow up a stump. Two pounds of 20 per cent dynamite, properly loaded in four holes, will send a four-foot stump skyward and there will be no trouble in prying out the roots. In fact, if it is a redwood stump the wood will often be blown to splinters.

Sometimes if a charge is placed too deep in the ground under a stump better results will be secured than if it is placed in holes bored into the wood. This depends largely upon the age of the stump. If it is only a few months since the tree was cut down, hole-boring is the better way; but if the roots are rotted or partly rotted, the underground charge will work wonders.

One man, who blasted out stumps from eleven acres, makes this report upon the profits of his enterprise:

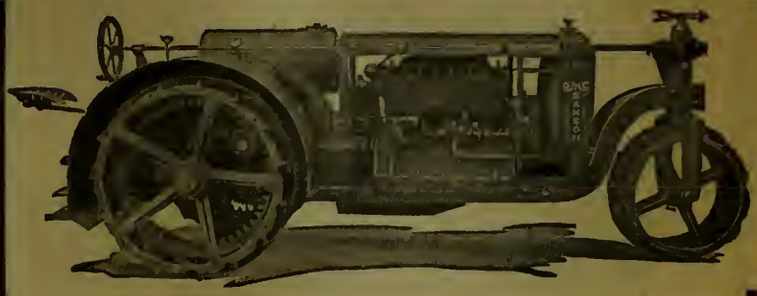
"My land is worth about $75 an

(Continued on Page 13)

GMC TRACTORS

SAMSON SIEVE-GRIP TRACTORS

GMC TRACTORS



Model S-25

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Why experiment when you can secure a tractor, time-tested, that has demonstrated its ability to meet any and all tractor requirements on the farm from plowing and cultivating to the hundred and one odd jobs?

THE GMC SAMSON SIEVE-GRIP TRACTOR, during its many years of service, has firmly established a record for strength, durability and economy, combined with great simplicity of construction and operation.

It performs the work of ten horses and does it better, more economically and quicker, in fair weather or foul, day in and day out.

We are sure the GMC SAMSON SIEVE-GRIP TRACTOR will please you. Ask the man who owns one or write for our booklet, "Better Farming."

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Ant Destroyer—is slow acting—does not kill instantly, but gets the nest as well as the parent. Does not lose strength. Positively non-poisonous—no danger to children, house pets or foodstuffs. Send 6c for trial can. Ask your neighbor. She uses it. Ask your dealer. Accept no substitute. Write Schrader Chemical Co., Dept. O, 19 to 25 Minna St., San Francisco, Cal.

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There will be a big demand for Bean Cutters this year, and when the time comes they will be needed quickly. Do not delay putting in your order now for what you need in this line.

We build two weights of sled cutter, the one shown above being our regular wood frame cutter. For heavy ground, where a stronger cutter is required, we make a steel arch frame at an additional cost of five dollars. Give your order to your dealer and insist upon having the Killefer Bean Cutter. Send for catalogue.

BEAN BLADES

You will need some extra blades; we can furnish you 5-16x5-inch x 6-foot blades at $12.00 per pair, f. o. b. Los Angeles.

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"The Big Event of 1918"

Barring Out the Bad Bugs

Splendid Work of Fruit Quarantine Men

By H. A. Crafts

I WONDER if the farmers and fruit growers of the middle west have any adequate conception of the work being done by California to safeguard them against the ravages of insect pests, plant diseases, etc. Of course, California performs this office primarily in her own behalf, but the result is the same. Night and day, year in and year out, California with her thousand miles of sea coast imposes an almost impervious barrier against the importation of injurious insects from both the Orient and the Occident.

California inaugurated her State horticultural department in 1885, and ever since that time has been extending and perfecting it in all its details. Out of a total of 58 counties over 40 have organized horticultural commissions with the prime object of preventing the spread of fruit tree pests, and now the function of the system has been extended so as to deal with the insect enemies of the farm crops

Large Staff of Inspectors

The State has a horticultural commissioner, insectologist, quarantine officer and over 200 horticultural inspectors. Its insectory is located at Sacramento, its quarantine office at San Francisco, and the work performed by the last named is something of a revelation. Here are some statistics from the report of a recent year: 589 vessels were inspected; 687,924 parcels carried by boat and 521,710 by rail were inspected; 4043 passengers were examined to see whether they carried contraband material or not; 25,874 parcels were fumigated and 2341 parcels were destroyed as being dangerously infected

A large number of quarantines have been enforced in California.

Reaches Out Everywhere

The department keeps tab upon all the insect infected sections of the world. As a help in this direction a map of the world hangs constantly in the quarantine office and upon this are marked and numbered all the infected areas of foreign lands Connected with this is a card system with cards corresponding in number with the numbers employed upon the map. Each card denotes the name of the insect, its host and locality. As a still further supplement a series of labeled phials contain the insects themselves nicely preserved and mounted. It is the duty of the quarantine officer to keep track of all vessels hailing from infected regions and to inspect each as it arrives with special reference to the recorded pests.

All inward shipments, whether by boat or rail, are rigidly inspected. Growing trees, plants, flowers, bulbs etc., are inspected up to 100 per cent Ordinary fruits and vegetables are inspected up to 33 1-3 per cent, while cereals are only inspected up to ten per cent. These ratios are found to be practically efficient.

Vital Importance of the Work

In this work of inspection the quarantine officers have the co-operation of government officials, such as postmasters, collectors of customs custom house inspectors, railroad and steamboat officials, etc., all of whom have come to realize the vital importance of this insect and plant disease blockade.

In San Francisco the horticultural officials are given precedence to the custom house officials and usually accompany the marine health officer in boarding an incoming vessel.

The horticultural inspectors are mostly young men, who have fitted themselves for their official duties, not so much by college courses as by practical experience gained by working on and among the orchards and vineyards of the State.

The American's Creed

I BELIEVE in the United States of America as a government of the people, by the people, for the people, whose just powers are derived from the consent of the governed, a democracy in a republic; a sovereign Nation of many sovereign States; a perfect Union, one and inseparable, established upon those principles of freedom, equality, justice, and humanity for which American patriots sacrificed their lives and fortunes.

I therefore believe it is my duty to my country to love it, to support its Constitution, to obey its laws, to respect its flag and to defend it against all enemies.

Hold Your Liberty Bonds

TO finance the war successfully it is necessary that owners of Liberty bonds hold their bonds if possible. Where for any good reason it is necessary for them to turn their bonds into cash they should seek the advice of their bankers.

Liberty loan bonds are very desirable investments, and crafty individuals are using various means to secure them from owners not familiar with stock values and like matters One method is to offer to exchange for Liberty bonds stocks or bonds of doubtful organizations represented as returning a much higher income than the bonds.

There are various other methods used and likely to be used, some of the gold-brick variety and others less crude and probably within the limits of the law All offers for Liberty bonds except for money and at market value should be scrutinized carefully. The bonds are the safest of investments and have non-taxable and other valuable features

To hold your Liberty loan bonds if possible, is patriotic. To consult your bankers before selling them is wise.

She also serves who stoops and weeds

California Tobacco

(Continued from Page 3)

largest and most difficult task. The manner in which the leaves are taken from the plant has already been told.

After picking, the large oblong leaves are taken to a shed where they are strung on heavy twine, much as one strings beads, and then hung over long bamboo poles. They are left in this condition for about one day, until they begin to wilt. As soon as they become sufficiently droopy they are placed back in the sun to dry out completely. If the leaves are not wilted in the shade the color is lost and their commercial value is gone.

After drying in the sun for several days the leaves are returned to the shed and prepared for shipment to the market in the East where they are used in making cigarettes, cigars and pipe tobacco.

The Chiflakos' plantation, although now only forty acres, is one flat expanse, and to stand at a slight elevation a short distance from the field, the picture presented by the plants waving in a gentle breeze, with their emerald green and golden brown leaves is one of rare beauty. The plants grow to about the height of the average man.

One Hundred Acres Next Year

According to James Chiflakos, principal owner of the plantation, he and his brothers will put in over one hundred acres of tobacco during the coming year and it is highly probable that other large land owners in that section of the county will abandon at least a part of their grain crop and go into tobacco raising

The experiment has been a big one. The experimenters put themselves in the way of losing heavily in the venture but as it has resulted so successfully they have opened up a new industry in Central California which is bound to attract many land owners and is destined to become one of the leading occupations of the western land barons.

How to Select Oil

HOW shall I select a proper lubricant for my tractor? Please give the essential points of a good all-round oil for the mechanism of this kind of machine.—E. T. P., El Centro, Cal.

We have discussed the essential points of tractor lubrication several times in this department, but for the benefit of E. T. P. and other inquirers we will give the following four qualifications of good oil:

1. It must form a thin film of oil between the two bearing surfaces.
2. It must be able to withstand the heat, to which the working parts it is meant to lubricate are subjected, without burning, decomposing or thinning down too much for lubrication. (This applies to cylinder lubrication where the pressure from the combustion in the cylinder may drive out the oil.)
3. It must be able to resist being squeezed from between moving parts. (This applies to crank shaft and piston pin bearings.)
4. It must have low internal frictional qualities—that is, the molecules of oil in the film which is under pressure should not generate heat by their rubbing together.

The temperature of the combustion chamber of a kerosene engine runs as high as 4000 degrees Fahrenheit. The temperature of the piston head ranges in the neighborhood of 500 degrees, the outer wall of the cylinder 212 degrees, and the crank shaft bearings 150 degrees. This means that the lubricant must have a high heat test. Ordinary oils have a fire test of 300 degrees Fahrenheit, while special kerosene engine oils have a fire test of not less than 600 degrees.

Be sure that the oil you use in a kerosene tractor has a high fire test. Be sure more complete lubrica-

Do Rabbits Pay?

By Mrs. C. A. Richey.

DO RABBITS pay? is a question often put to me, and I can say honestly that they do pay if handled in the right way and made a regular business. I can quote quite a number of people who have found the industry to pay or they would not have given their time entirely to it; in fact, they could not have afforded to do so.

One man here in Los Angeles sold a New Zealand doe for $100, a buck for $50, and is selling three-months-old stock for from $15 to $25 each.

Another man has cleared over $100 a month for the last eight months. Another is making $100 per month on an average. If he were working by the day he would get about $2.50 or $3 per day of eight or nine hours. Now he is his own boss

In Los Angeles this past summer rabbits, dressed, have retailed for 40 cents per pound. Six years ago, when I first started, one could not give them away during the summer. Forty cents a pound is higher than chicken meat, and it does not cost as much to feed rabbits as it does chickens.

Outside the city one can get a great deal of the feed just for the trouble of gathering it. In the city feed is high, still one can make money in town, as one can get a higher price for rabbits. In the winter they sell as high as 60 cents, never less than 50 cents per pound, retail

The skins of ordinary fries are worth 3 cents each; this seems very little, but it is astonishing how it counts, and one in a fair way of business can get a bale of skins in a short time. Eight or ten dollars for skins is quite an item towards the feed bill.

What can be made in rabbit raising depends upon the individual, his business ability and patience to stick to it against all obstacles, his nerve to get the best and to advertise attractively. It is no get-rich-quick scheme, but it can be made profitable and at the same time is an attractive and pleasant occupation for a man or a woman. The enjoyment one gets from displaying a fine animal that creates admiration more than repays one for the time and labor, aside from the profit such an animal will bring financially. The rabbit business will never boom and die out again as it did twenty years ago. The public is trained to eat domestic rabbits now and to demand them. The Government has taken up the rabbit proposition seriously as a means of producing meat and has sent out 100,000 bulletins on this subject. It also has an experiment station at Washington.

The rabbit business will never be overdone again any more than the chicken business. Both are necessary in this country and will become more so as time goes on, and if one has any business ability at all, he or she need not hesitate to take it up.

Congressional Humor

A member of Congress from one of the rural districts of Wisconsin was ambitious to distinguish himself by his oratory, and watched for a favorable opportunity. A motion was made in the House for enforcing the execution of some statute, whereupon the would-be orator rose and, after solemnly gazing upon the House in silence for a moment or so, addressed it as follows:

"Mr. Speaker, have we laws, or have we not laws? If we have not laws, and they are not observed, to what end are those laws made?"

So saying, he sat down, his chest inflated with conscious consequence. Instantly Jim Mann of Illinois rose and delivered this thought in these words:

"Mr. Speaker: Did the honorable gentleman who last spoke speak to the purpose, or did he not speak to the purpose? If he did not speak to the purpose, to what purpose did he speak?"

A Pennsylvania Farmer Says Concerning Electric Motors on His Farm

"A one-horse power motor is located in the spring house for separating milk, churning butter, turning a grinding stone, etc.

"In the house, my wife has a ⅙-horse power motor for running a washing machine. This motor can be attached to any lamp socket.

"In the barn a 15-horse power motor mounted on a little truck may be moved to any part of the barn or barnyard for grinding feed, baling hay and threshing grain. By extending the cable we have used this motor 400 feet from the barn."

This letter suggests equally profitable installations around your house and barns. The General Electric Company manufactures all sizes of electric motors for farm use. Information will be gladly furnished by your lighting company or our nearest motor agency.

General Electric Company

Los Angeles Office: Corporation Bldg.

6592

San Francisco Office Rialto Bldg.

IRRIGATION PIPE AT REASONABLE PRICES

We have 350 feet 7-inch 20-gauge pipe, practically new; 150 feet 6-inch 22 gauge. These pipes are recognized for their durability. They stand up under hard usages. Write at once, AS HERE IS AN OPPORTUNITY TO SAVE MONEY.

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HOLT AND INTERNATIONAL HARVESTER TRACTORS USED FOR DEMONSTRATION

Guaranteed Vulcanizing

	Re-cap.	Rib non-skid
30x3	$4.50	$8.00
30x3½	5.00	9.00
32x3½	6.50	11.50
33x4	7.00	13.75

Send for List on Other Sizes.

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1049-51 S. Main St., Los Angeles.

That Helps Some

"Ma," asked Johnny, "is the ink that papa writes with indelible?"

"No, it isn't," answered his mother. Why?"

Johnny breathed a sigh of relief. "I'm glad it isn't," he said, "for I just spilled it all over the carpet."

Player Music Rolls

Send for Our Catalogs

We carry the largest stocks of Player Music Rolls on the Pacific Coast. We have in stock all the new music. We get the hits as fast as the manufacturers make them into player rolls.

We issue a Monthly Bulletin listing only the real hits and the prices—the Bulletin is sent free and without obligation to purchase. We will gladly add the name of any Player Piano owner, upon request.

Write and ask us about our "On Approval" plan of buying Player Music.

When writing please state whether your Player Piano is a 65 note or an 88 note instrument.

We invite you to call at any of our stores—or write us asking for illustrated catalogues and prices.

We are dealers in Steinway and other Pianos, Pianola Pianos, Aeolian Player Pianos, Player Music, etc.

Sherman, Clay & Co.

Kearny and Sutter Streets, San Francisco.
Fourteenth and Clay Streets, Oakland.
Ninth and J Streets, Sacramento.
325 E. Main Street, Stockton.
J and Merced Streets, Fresno.
190-192 S. First Street, San Jose.
Stores also at Portland, Seattle, Tacoma, Spokane.

FULL LINE OF INTERNATIONAL HARVESTER COMPANY
Tractors, Cultivators and McCormick Harvesting Machines. Distributors Studebaker Wagons, Planet, Jr., Cultivators, Oliver Plows, etc.
B. HAYMAN CO., INC., 118-120 N. LOS ANGELES ST., LOS ANGELES.

MARTIN!

KING OF DITCHERDOM

Built for farm use. Equally successful for drainage or irrigation ditches. Fine for terracing and levee work. Cuts the toughest alfalfa or sweet clover roots without plowing. Leaves the ditch with smooth, hard banks. Works in any soil.

IT DOES THE BUSINESS

10 DAYS TRIAL

The name **Martin** on a ditcher is an assurance of satisfactory field work. It is significant that most Martins now go where others Martins blazed the trail. Each machine sells another—and the reason is

All Steel Reversible-Adjustable

No wheels, cogs or levers. Made in 2, 4 and 6 horse sizes. Large size fine for tractor use.

Model 20

Popularity and True Merit

The Martin always has been and always will be sold **on its merits** and under a guarantee of satisfaction. More **Martins** are now in use than all other farm ditchers combined, and the facts stated in this advertisement tell why.

Get This Free Book

A Three-Cent Stamp Finds Out

Just say "send catalog" and we will mail a list of users near you, together with full particulars and many photographic reproductions.

OWENSBORO DITCHER & GRADER CO., Inc.
1571 Wazee St., Denver, Colo.

Growing Lemons in Tents

Some Valuable Government Experiments

OFTEN citrus growers wonder if their products would not grow better and yield larger if grown under cloth, but many are deterred by the cost and by the fact that up to the present time there have been no authentic data on the subject to guide them.

Recently there have been gathered by government experts such data as might tend to indicate that the growing of lemons under tent tobacco cloth was a profitable method, though just at present the price of cloth is a little too high in years when cotton material is sold at a normal price. The government report includes the following information:

In November, 1913, a tent of tobacco cloth, approximately an acre in extent, was erected over a plat of 71 Eureka lemon trees in an orchard near Corona, Cal., for the purpose of determining its value as a protection from frosts. This tent was 15 feet high and otherwise was constructed essentially in the same manner as similar tents over tobacco fields in the Connecticut Valley.

Some Interesting Results

From the date of the construction of the tent until its destruction by a violent windstorm December 26, 1915, no serious frosts occurred in the orchard in which the performance record plats were located, so that it was impossible to secure any reliable data on the comparative merits of the tent and the orchard heaters in the neighboring areas for the protection of lemon trees from frost. A large amount of data were secured, however, showing the effect of shading lemon trees.

The average weight of green fruit per pick per tree from the 71 trees in the shaded plat was 18.56 pounds. The average yield of green fruit from the 105 trees in the not-shaded plat was 11.66 pounds. These data show and observations made during the picking of the trees confirmed the data, that the trees under shade produced more green fruits, which usually are the most valuable commercially, than the trees that were not shaded. It is believed that the improved conditions for growth of the trees and the fruits under shade was largely responsible for this result.

Improved Conditions

The average yield of tree-ripe fruit from the 71 trees in the shaded plat was 1.11 pounds per tree each pick. The average yield of tree ripe fruit from the 105 trees in the not-shaded plat was 5.20 pounds per tree each pick. This decrease in production of inferior tree-ripe fruit from the shaded plat was probably due, in part at least, to the better growing conditions under shade than was the case outside.

The average yield of cull fruits from the 71 trees under shade was 0.29 pounds per tree. The average yield of the cull fruits from the 105 trees in the not-shaded plat was 0.60 pounds. The smaller yield of cull fruits from the trees under the shade was probably due to the improved conditions for tree and fruit growth, including the protection afforded by the tent from high winds and the burning rays of the sun.

Higher Fruit Production

The average total production from the 71 trees inside the tent was 479.10 pounds per tree. The average total production from the 105 trees outside the tent was 419.12 pounds per tree. The average production under the tent per tree for each pick was 19.96 pounds. The average production outside the tent per tree for each pick was 17.46 pounds. The trees under the tent produced an average yield for each pick of 2.50 pounds of lemons more than the trees outside.

From this data, and that previous to the erection of the tent, it can be seen that while the differences in total production per tree were only slightly in favor of the trees under the tent, the principal difference is shown in the higher production of green fruits by the trees inside the tent as compared with those outside.

Drier Conserves Food

A HOME-MADE fruit and vegetable drier will help the housewife in her food conservation efforts. A simple, satisfactory drier for home use may consist of a series of trays with wire mesh bottoms. These trays should fit together closely so that when heat is applied beneath, the warm air will pass upward through the wire bottoms and carry with it moisture from the product. This arrangement enables one to dry various products at the same time, also it enables one to dry a quantity of a given product with little trouble.

A drier may be made of old boxes of scrap lumber. If new lumber is purchased, the approximate cost of a drier is from two to three dollars, depending upon the number of trays. It may consist of from one to ten trays. The tray should be 12x24 inches and 2 inches deep. The wire mesh for the bottom should range from screen wire in the upper trays to a somewhat large mesh wire in the lower. This helps to keep a more uniform temperature. A base 10 inches high should be made for the trays to rest upon. This base should be raised 4 inches by placing a brick under each corner when the drier is placed on the stove.

Plans from which to make a vegetable drier will be found in Extension Circular 23 of the University of Missouri College of Agriculture. This circular also contains directions for drying fruits and vegetables, and for storing and using the dried products. Send for this circular.

Cottage Cheese Saves Meat

COTTAGE cheese is an excellent substitute for meats, since it contains a high protein and energy value and it is cheap in comparison with other foods. The United States Department of Agriculture says that for supplying protein, a pound of cottage cheese is more valuable than a pound and a quarter of meat and as a source of energy it is about half as valuable.

Cottage cheese would be a more popular dish if it were served in a greater variety of ways. It can be used in making the dining table look more attractive and at the same time it is a delicious salad accompaniment when used as plain cottage cheese balls nestled in lettuce or water cress or when partially covered with strawberry or raspberry jam or preserved quinces. Cottage cheese can be flavored with caraway seeds, chopped stuffed olives, or [illegible] and used for sandwiches.

WRITE TODAY

for Barker Bros.' just-issued

BIG FREE CATALOG

of Furniture and Home Furnishing

112 pages describing, pricing and picturing from actual photographs hundreds of pieces of good, handsome, well-built furniture and hundreds of home furnishing articles, stoves, rugs, curtains and other dependable, guaranteed goods. Things you need and use every day. Write at once for your FREE copy. ADDRESS MAIL ORDER DIVISION No. 30.

Barker Bros
ESTABLISHED 1880

724 to 738 South Broadway
Los Angeles

TELEGRAPHY

Stenography Bookkeeping

Board, room and tuition may be earned. Splendid openings in the railroad business for ambitious women under 45. Send for free catalog.

MACKAY BUSINESS COLLEGE
9th and Main Sts., Los Angeles, Calif.

BELTING

Rubber, leather, canvas, balata, camel-hair and friction surface. One for every purpose and working condition.

Los Angeles Rubber Co.
122-124 East Third St., Los Angeles.
Main 1502. Home A1502.
Established 1898.

BAGS For All Purposes

New and second-hand. Every bag thoroughly inspected before shipping. Bags for grain, potatoes, seeds, rice, onions, beans, etc. Whether buying or selling, communicate with us.

SPEYER BAG CO.
869-873 Folsom St., San Francisco.

Rheumatism

A Home Cure Given by One Who Had It

In the spring of 1893 I was attacked by Muscular and Inflammatory Rheumatism. I suffered as only those who have it know, for over three years. I tried remedy after remedy, and doctor after doctor, but such relief as I received was only temporary. Finally, I found a remedy that cured me completely, and it has never returned. I have given it to a number who were terribly afflicted and even bedridden with Rheumatism, and it effected a cure in every case.

I want every sufferer from any form of rheumatic trouble to try this marvelous healing power. Don't send a cent; simply mail your name and address and I will send it free to try. After you have used it and it has proven itself to be that long-looked-for means of curing your Rheumatism, you may send the price of it, one dollar, but, understand, I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer when positive relief is thus offered you free? Don't delay. Write today.

Mark H. Jackson, No. 660D, Gurney Bldg., Syracuse, N. Y.

Mr. Jackson is responsible. Above statement true.—Pub.

"Practical Farming and Gardening" should be in the hands of every practical farmer. Special departments by authorities in their particular line are of vital importance to Western farmers. Note ad on another page of this issue.

SINGLE TAX
WHAT IT IS AND WHY WE URGE IT
By HENRY GEORGE

Other Single Tax literature to be had for the asking. LOS ANGELES, 203 Tajo Building, First and Broadway. SAN FRANCISCO, 948 Market Street, Room 1. Old and new friends always welcome.

Where System Counts

(Continued From Page 9)

acre, which made the value of the eleven acres $825. If you figure interest on this investment, that means $41.25 a year must be charged for this item. The taxes amounted to $10. It was costing me $51.25 to pasture five cows before the stumps were pulled, or $10.25 a cow each year for pasture, which is much more than cows can afford to pay.

"If I get fifty bushels of corn an acre this season, I shall have 550 bushels from the eleven acres, and figuring corn at $1.50 a bushel, that means $775. It cost only $70 to clear this field, and this small amount of figuring shows that it really paid"

Economy in Tractor Use

A SYSTEM can be worked out for the economical use of the tractor, but in nearly every case the tractor owner must study his machine, keep close records of its performances and of what they have cost him from season to season.

A Yolo county rancher sent us the following, which will interest every man who is doing much tractor work. This man has a ranch of 320 acres in the Sacramento Valley.

"It has been proven by Government tests that any tractor will do its work most economically as to fuel and long life, if it is worked at around 75 per cent of its rated capacity. If I buy another tractor, my choice would be a four-bottom size, and I would most of the time run it with only three 14-inch bottoms.

"It does not, in my estimation, pay to do much custom work, except threshing, with a tractor. The cost of operation is such that one needs the profits that accrue from the work one does with a tractor as well as the value of the work itself. To illustrate, we may get $250 for plowing and seeding 100 acres of land for someone else. The net profit of this work would be very little compared to the potential profit accruing from doing that much work for yourself, taking all things into consideration.

"I have had no experience with large outfits, but I do not believe that many of them are very successful. And last, don't think it is a snap to take care of and run a tractor. You will be just as tired when your day's work is done as at any work you ever undertook, and you will always have your days of disappointment and trouble, but it pays to have a good tractor."

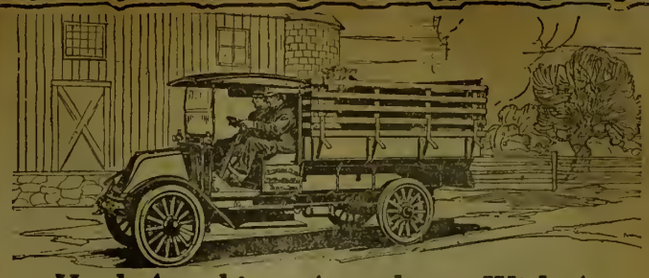
"Lafayette, we are here!"—Pershing.

Our President

By Little McClung

MAN for the time,
Man of the hour,
Master for service,
Unmastered by power;
Master in deed,
Master in thought;
Leader, the spirit
Of Freedom has sought,

Arm that is strong,
Eye that is clear,
Will that's determined,
Heart without fear;
Armored in trust,
Democracy's knight,
Leading through blackness
With a beacon of right.



Haul Anything, Anywhere, With An International Motor Truck

A FARMER never knows how much speedy hauling means to him until he buys an **International Motor Truck.** Ben Campbell, Minnesota stockman and farmer, says, "Looking back now I do not see how we ever got along without our International. We use it all the time."

The illustration shows Mr. Campbell hauling one of his famous pure bred bulls to market.

He uses the truck to haul livestock, farm produce, and supplies, and keeps it busy. Any farmer who owns an International will tell you that it is a necessary farm machine — one of the busiest pieces of machinery on the farm, and used more days per year than any other. New as the motor truck is to the farm there are already stories of thousands of dollars worth of crops saved by motor truck hauls when railroads were overloaded. With a motor truck a farmer can sell in the best market and make his deliveries as promised. With an International he can haul anything, anywhere, any time.

It will pay any farmer to investigate the **International Motor Truck.** We have a dealer, a branch house, or a service station somewhere near you, where the line can be seen, or we will send full information promptly if you will write us.

International Harvester Company of America
(Incorporated)

Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

Good Overalls Pay For Themselves

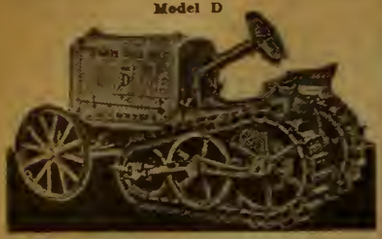
In the added comfort and safety and clothes-economy they give you—Boss of the Road Overalls easily pay for themselves. That's why they're good overalls.

We use the toughest indigo blue denim—properly cut and fashioned for comfort and wear. Double-stitched seams; hold-fast, patent buttons. Workmanship the best—materials the strongest.

Just a few reasons why it is *always* good economy to buy Boss of the Road Overalls — *a Neustadter product.* Look for the Bull Dog on the label. It is your protection. Never has this trade mark meant so much to you as it does today.

San Francisco NEUSTADTER BROS. Portland

BATES STEEL MULE
Model D



ENTERED TRACTOR DEMONSTRATION SEPT. 12-21 LOS ANGELES

F. T. BRILES
Southern California District
214-16 N. Los Angeles St.
Los Angeles, Cal.
Branch House:
110 Main Street Porterville, Cal.

Ranchers, Attention!
While It Lasts

100,000 ft. choice bright second-hand galv. corrugated iron, all lengths.
3,000,000 ft. dry dimension lumber, all dimensions.
Greatest stock of new and second-hand plumbing, more than all others combined; must be seen to be appreciated; latest designs at reasonable prices; building material for every purpose; ranch accessories, such as nails, barb wire, hog and poultry fencing.
Get our estimates; several buildings now coming down; every shipment, large or small, guaranteed; play safe and buy right.

SYMON BROS.
WRECKERS,
1501 TO 1527 MARKET STREET,
SAN FRANCISCO.

BEST TRACKLAYER TRACTORS

Will Be There

Third Annual Tractor Demonstration
Los Angeles, Sept. 17, 18, 19, 20, 21

Two Models

THE "40" for the moderate-sized farmer and orchardist—does the work of eighteen horses.

THE "75" for the larger farmer and plantation—does the work of forty horses.

Best Tracklayer Tractors Are Superior

They embody what is to be desired in a tractor. They are machined and assembled by skilled mechanics—DESIGNED BY C. L. BEST—BACKED BY TWO GENERATIONS OF TRACTOR BUILDERS.

MANUFACTURED BY

C. L. Best Gas Traction Co.
San Leandro, Calif.

Lights with a Match!

NO torch needed with this new lamp. Just use a match as with the old time oil lamp. Gives a brilliant, steady, white light of 300 candle power, brighter than the brightest electric light, safer than the safest oil lamp, cheaper than the cheapest candles.

Coleman Quick-Lite

makes and burns its own gas from common gasoline. No wicks to trim—no globes to wash. No dirt, grease, smoke or soot. Absolutely safe, no danger of fire or explosion. Fuel can't spill—no danger if tipped over.

Safest in the World

Write for Catalog
Cole Lite and Sales Co.
1216-18-20 E. 41st St.
Los Angeles

Demonstration Room 246 S. Spring

Reliance
Irrigation Meters

Are measuring water for over 2000 water users. Why not use up-to-date methods in distributing water? Now is the most important time to produce maximum crops on the minimum amount of water. Eliminate waste.

Send for descriptive booklet, "The Water Watch."

Hydrometric Company
955 N. Main St.,
Los Angeles, Cal.

Tractor Problems

Is your tractor giving you any trouble? If so, write to Tractor Editor, Orchard and Farm, Examiner Building, Los Angeles, and a reply will be mailed to you from our expert. If you have no objection both questions and answers will be printed in this department.—The Editor.

Safe Load for Tractor

HOW shall I determine what is a perfectly safe load for my tractor. I have a new machine and don't want to strain and ruin it the first year, as some of my neighbors have done with theirs.—L. G O'C, Visalia, Cal.

It is difficult to tell what your tractor will do by way of a stiff pull, as you do not mention the type or horse power. We have all along advised tractor owners to avoid overloads, for they are sure to result in permanent injury. It is a much wiser policy to work the tractor up to capacity or a little under, and then take advantage of its ability to work long days or day and night. More work will be done by this method and the tractor will give more years of satisfactory serpice.

Perhaps you may get a good idea of a proper tractor load by the following example:

How many 14-inch bottoms plowing 6 inches deep, will 10 horsepower drawbar tractor pull in clover sod?

The draft of each plow will be 588 pounds. Two plows will be a safe load.

About Drive Wheels

IN selecting a tractor would you advise me to buy one with one, two or three drive wheels? I have been somewhat confused by different agents putting forth the merits of their machines, each tractor having a different number of such wheels—H. K., Orland, Cal.

No wonder you are confused when a number of salesmen get hold of you. We could hardly like to recommend any particular type of tractor when it comes to the number of drive wheels it possesses. While the one wheel drive and the three-wheel outfit can bring their line of pull near to or in line with the center of the drive wheel, when operating a single plow or a two-plow outfit, they are said to be rather uncertain in turning under load unless this turn can be made on a wide circle. This unstable condition results principally from the necessity of placing the engine weight rather high and over the drive wheel.

Driving by the two rear wheels gives more certainty of footing, enables the engine weight to be placed low between them, gives fine stability and center draft for plowing or hauling. Also, owing to the differential action between these drive wheels this design causes less tearing up of roads, sod or soil, upon which the machine is turning.

Four wheel drives have been reasonably successful for truck work, and as tractor designers are active in this field, probably something satisfactory will yet result.

Steers Like a Tractor

AFTER reading what your Medford correspondent says about his machine being so hard to handle, would say you are right in your answer about the steering difficulty. Can't something be done to make them steer easier?—R. T., Santa Clara, Cal.

You and other correspondents who complain about hard steering are probably automobile owners nad you have heard motorists say when the wheel stuck, "This machine steers like a tractor." Well, that's the answer. Lubrication will help a little, but you can't expect to handle your tractor like a flivver. Be patient. You will get the hang of it after a while.

Don't Speed Up Engine

I NOTICE that by speeding up my engine I can increase my power and cover more ground in a shorter time. But I should like to know if this is a safe working plan—D. B., Salem, Ore.

No, it isn't. Speeds above normal will give you more momentum, but not more real power, and they are destructive to the mechanism. Speed up only in emergency and let the emergency be rare.

Grease Cups Don't Work

MY grease cups don't work well. I know they are not lubricating the bearings, as they get hot. What shall I do?—J K. M Carson, Nev.

Keep your grease can well covered. Don't let in the dust and grit which will clog the cup. When you pack the cup be sure to squeeze the grease well down into it. Screw the top down until you can see the grease oozing out of the bearings.

A Critical Situation in Flanders

INSPIRING history of the Great War is being written from day to day in the citations for bravery reported by General Pershing. If we read every one of them, no matter how long the list, we will be better Americans. Here is one:

"Second Lieutenant William B. Moore—On June 6, 1918, he volunteered and took a truck load of ammunition and material into the town of Bouresches over a road swept by artillery and machine gun fire, thereby relieving a critical situation."

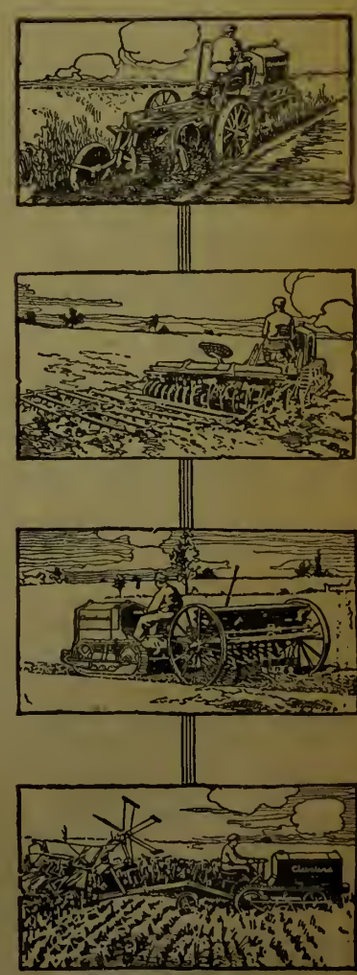
History of this sort does not use adjectives. It is written from the field of blood and iron, where description is a pathetic thing. When Pershing says Lieutenant Moore relieved a critical situation we are safe in accepting that it was all the term implies.

American lives were hanging by a thread, the line of civilization was threatened and the gray horde of Huns was snapping at that break straining to force through.

No one is surprised that there was a Lieutenant Moore to take that truck load of materials through hell to relieve that critical situation. There is always a Moore, a Hobson, a Farragut, a Funston to meet any emergency of American arms.

But that truck load of ammunition and material—what if it had not been there and American bravery would have been futile? That's our business—we stay-at-homes—to see that those trucks, piled high, are there. We must be sure of it. Our Liberty bonds buy ammunition and material. The Fourth Liberty Loan is coming for six or eight billions and we must be ready to back up that wonder and of Lieutenant Moore.

A Little "Tank"—for Farm Work



The Cleveland Tractor is built on the same principle as the wonderful European battle "tanks."

It travels on its own tracks, laying them down and picking them up as it goes along.

This efficient type of construction makes the Cleveland *specially* valuable to farmers, as it enables them to work practically *anywhere*—over almost *any kind* of farm land.

They are being operated over gullies, ruts and ditches, through soft soil, wet clay, sand and gumbo—without sinking or floundering. *They do not pack the soil.*

They are working under and among small trees, close up to fence corners, on hillsides and over rough ground with much better results than can be obtained with horses or with any other type of tractor.

And they are working much *faster.*

Thousands of Cleveland Tractors are helping to increase the production of food demanded by war conditions.

The Cleveland, pulling two 14 inch bottoms—which it will do under average conditions—plows 3½ miles an hour—eight to ten acres a day. This is equal to the work of *three* men and *three* good three-horse teams.

The Cleveland steers by the power of its own engine; it requires but slight effort on the part of the driver. Only one man is required to operate it. 12 horsepower is developed at the drawbar and 20 horsepower at the pulley. It is a constant source of tractive and stationary power for twelve months in the year.

It plows, harrows, plants, reaps, cuts ensilage, runs saws and pumps, drags logs, pulls road machinery, hauls manure spreaders and does practically all the work formerly done with horses or stationary engines.

The Cleveland Tractor produces food but consumes none of it. It conserves man power, horse power, time, energy, and effort—and produces greater returns.

The Cleveland Tractor was designed by Rollin H. White, the well-known engineer. It is manufactured under his supervision. Gears and tracks are protected from dust and dirt. Materials throughout are of the best. The whole machine weighs only about 3200 pounds. It can be housed in less space than is needed for a horse.

Take advantage of present produce prices. Raise *more* food *now.* Help the nation and incidentally make more money yourself by using one or more Cleveland Tractors.

Write for complete information and the name of the nearest Cleveland dealer.

The Cleveland Tractor Co.

The largest producer of Crawler-type Tractors in the World

19081 Euclid Avenue **Cleveland, Ohio, U. S. A.**

Cleveland Tractor

Bailey Millard, Editor.

Those Imperial Valley Farm Loans

OUR amiable controversy with President Joyce of the Federal Land Bank at Berkeley, Cal., has attracted coastwide attention.

Letters are coming in from ranchers in all the Pacific States tributary to the Berkeley bank commending our position and our contention that the Federal Farm Loan system has failed to meet the great war emergency in the matter of supplying loans to many farmers who, if they had been able to secure money from the government, would have put in much larger crops and would have been able to help the Food Administration much more than they have done.

A big point was made by Orchard and Farm by showing the deplorable condition of farm loan affairs as they affected the Imperial Valley.

We had sent a letter to Herbert Quick, one of the Farm Loan Commissioners at Washington, informing him as to the condition of affairs in the Imperial Valley and showing him how they might be improved. Mr. Quick, who is a farmer himself and a great friend of farmers, referred the letter to Mr. Joyce, president of the Berkeley Land Bank, who, if he took any action upon it to help out the Imperial Valley folks, has by no means made that action plain.

In a letter to Orchard and Farm published in July, President Joyce set forth at some length our "misapprehension" of the functions of a Farm Loan Bank and proceeded to say that the reason why more loans had not been made in Imperial Valley had been that he had been waiting to secure reports as to subsoil conditions there and also as to water conditions.

Mr. Joyce never has answered our complaint, or rather the complaint of the Imperial County Farm Bureau, that the ranchers of that county have had to wait for several months to get appraisements of their lands owing to the fact that the bank employed only one engineer appraiser, even in this great war emergency period.

Meantime the Imperial ranchers were pleasantly given to understand that if they wanted to borrow money they would have to look to other sources than the Berkeley Land Bank—other sources, meaning the private bankers and the loan sharks who exact all the way from nine to twelve per cent.

Now Orchard and Farm takes no more interest in the financial betterment of the Imperial Valley than it does of that of any other part of the Pacific coast. This paper is published as much for the good of the Oregon dairyman as it is for the Southern California fruit grower. It plays no favorites. But when we see such a wonderfully fertile section as the Imperial Valley treated in the manner indicated we feel impelled to make a protest.

We know we are right in making this protest because we are backed up by so many ranchers who are writing to this office commending our stand and relating their personal experiences with the land bank.

One of these ranchers, Mr. William Holtz of El Centro, says in a recent letter to the editor:

"For God's sake, keep up the good work! I have been waiting for two years for assistance from the land bank and can't see even a trace. As to soil maps, I have had a government soil map for eleven years. If ever there was a slow bunch it's those connected with the Berkeley Land Bank. Only for criminal carelessess and spite work we never should have had a water shortage. The reclamation service at Yuma does us as much harm as the supporters of the Los Angeles Times. Send the Federal Land Bank president down here and let us show him something."

From Red Bluff, from Turlock and from many other places come protests of farmers who have been refused loans by the land bank though some of them have asked for sums of less than half the value of their land and improvements and stock.

While it may be true that in some of these cases no bank would have loaned money to the applicants, it does seem a pity that in this food emergency it is so difficult to borrow government money with which to grow larger crops.

~SOME JOB, UNCLE!~

When Johnny Comes Marching Home

OUR soldiers have been giving such a good account of themselves in harrying the Huns that it begins to look as though the war would not last forever.

What are we going to do with Johnny when he comes marching home?

High-brow economists—those who know how to do everything—are asking this question and they are answering it to their own complete satisfaction.

We hear a lot about a wonderful back-to-the-land movement of soldier boys after the war is over. Some of these economists want to settle all the soldiers upon the land by a great Congressional sweep of the hand that shall give them 40 or 80 acres apiece, with houses, barns and tools—ready-made farms that shall cost them nothing and shall be a wonderful means of occupation and a great source of food production to bring prices down with a whoop when the Kaiser has been banished to St. Helena, or boiled in oil or decapitated.

This back-to-the-land business sounds good.

We want more settlers and we want more food producers.

We want more healthy, hardy-handed husbandmen to help restore the race and to heap up our granaries

But what we want more than anything else is that our soldiers and everybody else shall be satisfied.

It is the malcontent that makes trouble and it is the reactionary that makes the malcontent.

We don't care what becomes of the reactionary. We would cheerfully see him join hands with the Kaiser in the nethermost regions where Kaisers belong. But we do care what becomes of our returning soldiers. We want them all to get good jobs when they are done soldiering. We want them to occupy congenial positions. We don't want them to be forced out upon farms or even lured there by false promises of what they can do on free land or any other kind of land.

Now, please don't run away with the idea that we think soldiers do not make good farmers. Some of them will fill the bill very neatly. There will be land-hungry men among them—men, who, after a long stay in camp will want to remain outdoors and pursue their peaceful way under the open sky.

These should be encouraged to go out and make their homes upon the land and they should be helped by the Government in every way possible. But let's not try to do the impossible.

Canada made the mistake that our land-wise economists are making. Canada tried every means in her power to settle her returning soldiers upon the land. She needed more food and there were vast stretches crying out for settlers. But read what T. B Kidner, vocational secretary of the Canadian Soldiers' Commission, says about the attempt to make farmers out of returned soldiers:

"There is no wild desire on the part of the returned soldier to go on the land. They usually have had enough of land. As one man put it to me, 'I have lived in it; it has been in my hair and my food for 18 months; and I don't want any more land as long as I live.' The theory that because the men have lived the free and open life of the trenches and the camp, they will not want to return to sedentary occupations has not worked out in our experience."

There you are. That tells the whole story. The economical theorists are wrong. They ought to be right, of course, but desirable as it would be to have all our soldiers go back to the land, what most of them will be seeking will not be open-air work, but indoor jobs, preferably Government jobs at good pay.

No, California and the other Pacific States are not going to be settled up by returning soldiers. Let us dispel that idle dream.

The way to settle this coast is to sell land at attractive prices and on attractive terms to people who really want to go upon it. Let the Government, by new farm loan laws making it easy for settlers to get money, aid in this desirable movement, and let it begin to work right now when so many people are anxious to share in what they fondly suppose to be the great financial rewards of the farmer.

Sunflowers

To the Gallows

"Why were the police called at that big wedding?"

"They were throwing real rice at the newlyweds."

She Showed Them!

She had on a very short skirt and the wind was blowing. As she started to cross the street she noted a little group of men at the corner. "The horrid creatures!" she cried, "I'll show them!" And she did!

Had Nothing on Him

"See the spider, my son, spinning its web," said the instructive parent to his small son. "Is it not wonderful? Do you reflect that no man could spin that web, no matter how hard he might try?"

"Well what of it?" replied the up-to-date offspring. "Watch me spin this top. No spider can do that, no matter how hard he might try."

Tried Both

Colonel: Well, what do you want?

Hobo: Colonel, believe me, I am no ordinary beggar. I was at the front.

Colonel: You were?

Hobo: Yes, sir, but I couldn't make 'em hear, so I came round to the back.

A Suggestion

The Bride: I want a piece of meat without fat, bone, or gristle.

The Butcher: Then, madam, I'd suggest that you buy an egg.

Candor

He—You used to say there was something about me you liked.

She—Yes; but you've spent it all now.

Valuable Antiquities

I have a nickel (1883) without the word "Cents," a cushion tire of 1891, a copy of the Patent Office report for 1873, a piece of cold lava from Mount Vesuvius, and a wooden nutmeg made from wood of the Charter Oak, at Hartford, Conn. What should I be able to trade them for?

San Bernardino, Cal.

Don't do anything until you see us. We have a hole from a doughnut of 1866, very rare and in perfect condition, a petal from the original Last Rose of Summer, the shell of the egg which Columbus broke at the Court of Spain, and the red ball of a Roman candle used by Julius Caesar. State plainly on what train you are coming, and we'll do our best to have a moving-van with a portable what-not ready to meet you.

Just the Man

A professional strong man, a performer in vaudeville, was a passenger on a train from Chicago to New York, and had occasion to go into the day coach. There he was accosted by an eccentric looking person, who said:

"Pardon me, sir, but are you not the strong man?"

"Some say I am," was the good-natured response.

"You can lift three tons in harness?"

"That's my record."

"You can hold two hundredweight at arm's length?"

"Yes."

"And put up three hundred pounds with one hand?"

"Yes."

"And six hundred with two?"

"I can."

"In that case," continued the eccentric looking person, "will you be so good as to undertake to raise this [illegible] for me?"

You Sit Where You Always Sat On the Seat of the Implement

YOU wouldn't think of riding on the back of one of your horses while at work in order to guide your team. If you did you would require another person to operate the implement, because implements require constant attention.

Then why attempt to operate a tractor in a manner which your experience has proven impractical? It is just as illogical to ride on a tractor in front of the implement and expect to operate the implement from that position as it is to operate the implement from the back of your horse.

Any way you look at it you are working at a disadvantage with the ordinary tractor. To do the best work two operators are required, one on the tractor and one on the implement. In these days of extreme labor shortage this is a tremendous handicap. With the operator on a tractor in front of the implement it is manifestly impossible for him to give the implement attention and make adjustments for varying field conditions without losing time.

Just Like Driving Horses

With the Moline-Universal Tractor you sit on the seat of the implement and have perfect control of both implement and tractor. You are in the best position to observe the work, make adjustments and manipulate both tractor and implement. This holds true regardless of the work being done—plowing, discing, harrowing, planting, cultivating, mowing, harvesting, both grain and corn.

A Time Tried Principle

There is nothing new about this, we simply apply a principle which millions of farmers have demonstrated to be sound. The Moline-Universal gives one man control of greater power than is possible with horses, with the same method of handling and as much versatility. With the Moline-Universal one man can farm more land. It is a six-horse unit—easier to control than one horse and capable of doing the work of from 6 to 8 horses.

Works Day and Night

The One-Man feature is just one of many advantages the Moline-Universal has over other tractors. It is the only tractor which will do all farm work, *including cultivating.* It is the only tractor regularly equipped with self starter and electric lights. Non-robust labor can operate the Moline-Universal successfully, and it can be worked day and night.

No detail has been overlooked to give the new Moline-Universal Model D Tractor positive reliability. The perfected, overhead-valve 4-cylinder engine develops unusual power, and is economical in operation. It is conservatively rated at 9-18 H. P. Oil is forced to crankshaft bearings under 35 lbs. pressure. Gears are steel cut, drop forged, and heat treated. All shafts are splined. Every working part is easy to get at, and every moving part is enclosed.

Valuable Information for You

Our catalog tells how you can operate your farm with less help and expense by using a Moline-Universal Tractor. A post card will bring the catalog to you.

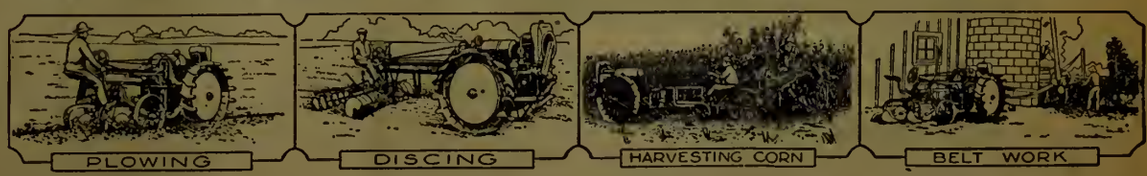
Since 1865 we have been making farm machinery, and now offer a complete line of both tractor and horse drawn implements. Information on any of the Moline implements listed below will be gladly furnished on request.

Address Dept. No. 48

MOLINE PLOW CO.
MOLINE, ILLINOIS

Manufacturers of Quality Farm Implements Since 1865

Plows, (steel and chilled)	Hay Rakes	Scales
Harrows	Hay Loaders	Grain Binders
Planters	Hay Stackers	Corn Binders
Cultivators	Grain Drills	Wagons and
Mowers	Lime Sowers	Moline-Universal
	Manure Spreaders	Tractor



"Practical Farming and Gardening" should be in the hands of every practical farmer. Special departments by authorities in their particular line are of vital importance to Western farmers. Note ad on another page of this issue.

THE SELF-OILING WINDMILL

has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the geaning of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load

We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

Write AERMOTOR CO., 2500 Twelfth St., Chicago

GOING TO BUILD?

Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.

Contractors' & Builders' Supply Co., 1401 5th St., Oakland, Cal.

Hardy W. Campbell's valuable book, "Progressive Agriculture," is being offered for sale, including three years' subscription to Orchard and Farm, for $1.25. Mail your order today.

FISH Salmon in brine, 100 lbs., $11.00. Shipping weight, 175 pounds

Smoked salmon, 20 lbs., $3.25. Dried codfish, 10 lbs., $1.75. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

WITTE Kero-Oil Engines

Twice the Power at Half the Cost

Sizes 2 to 30H-P.—Select Your Own Terms—Direct-from-Factory prices. Write your own order—Save $15 to $200. Prompt Shipment. Big new catalog, "How to Judge Engines" FREE—by return mail, Postpaid.

Write Today

WITTE ENGINE WORKS
3120 Oakland Ave., Kansas City, Mo.
3120 Empire Bldg., Pittsburgh, Pa.

Money Back If not satisfied on my New 90 Day Engine Offer

If you have something to sell or trade, why delay? A small classified ad in Orchard and Farm will complete the deal. The cost is small.

2 IN 1

Suspensory and Rupture Appliance J. C. Riley's combination patent. Weight but [illegible] ounces. Fits like a glove. Why suffer a minute longer when relief is at hand at a moderate price? Made by a man who cured himself. Description circular and prices sent by request.

J. C. Riley Co., 1462 Sunset Blvd., Los Angeles, Cal.

INDIANA MOTOR TRUCKS

1, 1½, 2, 3½ and 5-ton Capacity

In the **INDIANA** you obtain more value per dollar of investment than can be obtained in any other truck on the market. **INDIANA TRUCKS** posses high quality, exceptional value, built into each and every truck so that a purchaser is assured of the value and service he has a right to expect from his truck investment.

With many million dollars worth of Indiana Trucks in daily service in many parts of the world, Indiana quality, value and superiority of construction and economy of operation are acknowledged and established beyond question of doubt. Satisfactory terms may be arranged.

Motor Distributers Company

Distributers for

INDIANA TRUCKS and TRUNDAAR TRACTORS.

1242 Mission Street, San Francisco.

Trundaar Tractors

The Buckeye Trundaar Tractor

The **Buckeye Trundaar Tractor** is ten years ahead of the present stage of the industry. It is the evolution of twenty-three years of building tractors to meet farm problems.

The **Trundaar Tractor** is constructed throughout to meet every requirement and condition on the farm.

Motor Distributers Company

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TRUNDAAR TRACTORS and INDIANA TRUCKS.

1242 Mission Street, San Francisco.

Trundaar Tractor
SPEEDS UP THE BUSINESS OF FARMING
THE BUCKEYE MFG. CO., ANDERSON, INDIANA

Moving Day for the Bees

How to Transfer Them From Hive to Hive.

By E. L. Sechrist.

A METHOD of transferring bees to modern hives which is especially useful to apiarists and by which a great deal of transferring can be done with a minimum amount of work is the following:

Place the box-hive with its largest surface uppermost, usually on its side, with the combs on edge so that they will not break down. The bees in the box-hive should be well smoked before the hive is turned on its side, and it should not be moved to another location.

What is now the top side of the box-hive should be removed by splitting it into strips one or two inches wide, and these strips should be carefully removed so as to avoid mutilating the combs.

The prepared hive containing combs o. comb-foundation, at least one comb being used, if possible, is then set on the box-hive over the greatest cluster of bees, and a piece of board placed over any part of the box-hive not covered by the new hive. If any part of the new hive extends over the box-hive, the opening should be closed with a lath or a strip of board.

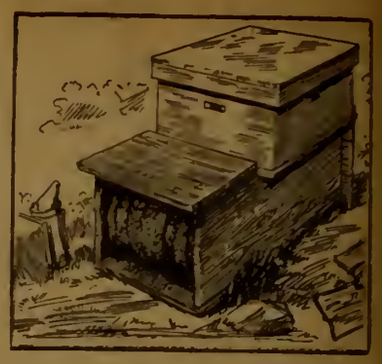
What is now the front of the hive may, unless there is danger of robbing, be left entirely open, and this will cause the bees to work up into the new hive much sooner. If the bees are likely to rob, a board may be set up partly to close the front of the hive.

If the box-hive has no comb in the top (caused by having been robbed the previous season) the space should be filled with straw or shavings, the modern hive set over the part where the comb is, and a board laid over the straw. This will prevent the building of any more comb in the box-hive.

If there is some honey in the top of the old hive, the bees will remove it if the cover is pried off, little by little, several times during the season, until finally it can be removed completely, leaving both ends of the hive open.

By this time the bees will have moved all the honey into the new hive, the queen will have established her brood-nest there, and the bees will have transferred themselves.

If the beekeeper wishes, he may, after the queen has begun to lay eggs above, put a queen-excluder between



Transferring Bees From Hive to Hive

the new hive and the old, which will prevent the queen from returning to the box-hive. This usually will not be necessary, as the bees will probably abandon the box-hive as a brood chamber,

After the brood has all emerged from the combs in the box-hive the new hive may be placed on the regular bottom-board, the old hive may be broken up, and the combs may be rendered into wax.

Supers should be placed on top of the new hive as needed. even while it is on the box-hive, to prevent the bees from returning to the abandoned brood-nest.

This plan usually prevents swarming for the season and enables the bees to store the full crop of honey

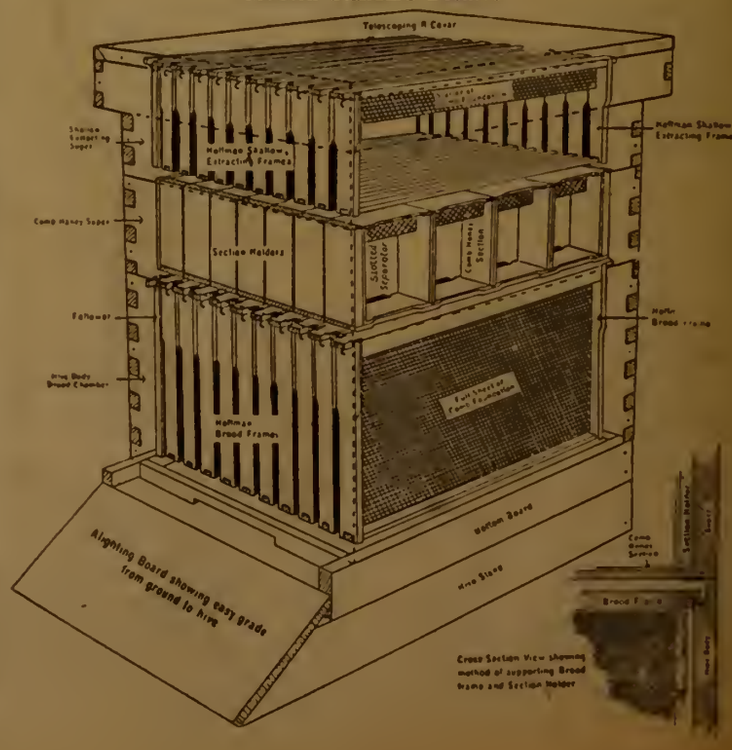
Transferring can be done at any time when there is some nectar being gathered so that the bees will not be inclined to rob, although during a heavy honey-flow the combs will be heavy with honey, which makes them difficult to handle.

Some method of transferring can be used successfully at any part of the active season if care is taken to see that the colony does not suffer later from lack of food.

Bees are wild animals, and man can handle them only in accordance with their natural activities if he wishes them to yield the best returns.

The man who understands bee behavior can do almost anything with bees if he tries to make them do only the things it is their nature to do.

Modern Standard Beehive



Feeding of Milch Goats

THE underlying principles of feeding dairy cattle also apply to the feeding of the milch goat, which is a single-purpose animal, bred for milk production. On most of the large goat ranches some concentrates are fed, barley, oats, wheat, dried beet pulp, and cocoanut meal being used more largely than any others in this State. The heavier milking does receive as much as two pounds of concentrates per day when in full flow of milk, but rarely over this amount At the University Farm the goats have been fed a variety of concentrates—cracked corn, linseed meal and cotton seed meal, besides those mentioned above. Some of the concentrate mixtures fed at the University Farm are as follows:

	Parts by weight
I.	
Rolled barley	1
Wheat bran	1
Dried beet pulp	1
Cocoanut meal	1
II.	
Dried beet pulp	6
Rolled barley	1
Wheat bran	1
Cocoanut meal	2
III.	
Dried beet pulp	1
Wheat bran	1
Oats	1
Cocoanut meal	1
IV.	
Dried beet pulp	3
Rolled barley	1
Wheat bran	1

Alfalfa hay is well liked by goats and they do not usually tire of it, but it is well to supplement it with a little grain hay once or twice a week.

Both roots and silage are greatly relished by goats. Thistles make a palatable feed when dry—preference being for the seeds, however. Pasturing is the ideal method of feeding. Goats do well both on alfalfa pasture and on some of the native grasses on rocky and hilly land. The goat enjoys variety, hence it is wise to provide as large a pasture as possible.

When goats are kept in a corral, leaves and prunings are very acceptable to them, and even when on pasture this feed is relished greatly. Clean kitchen garbage will be eaten with a relish.

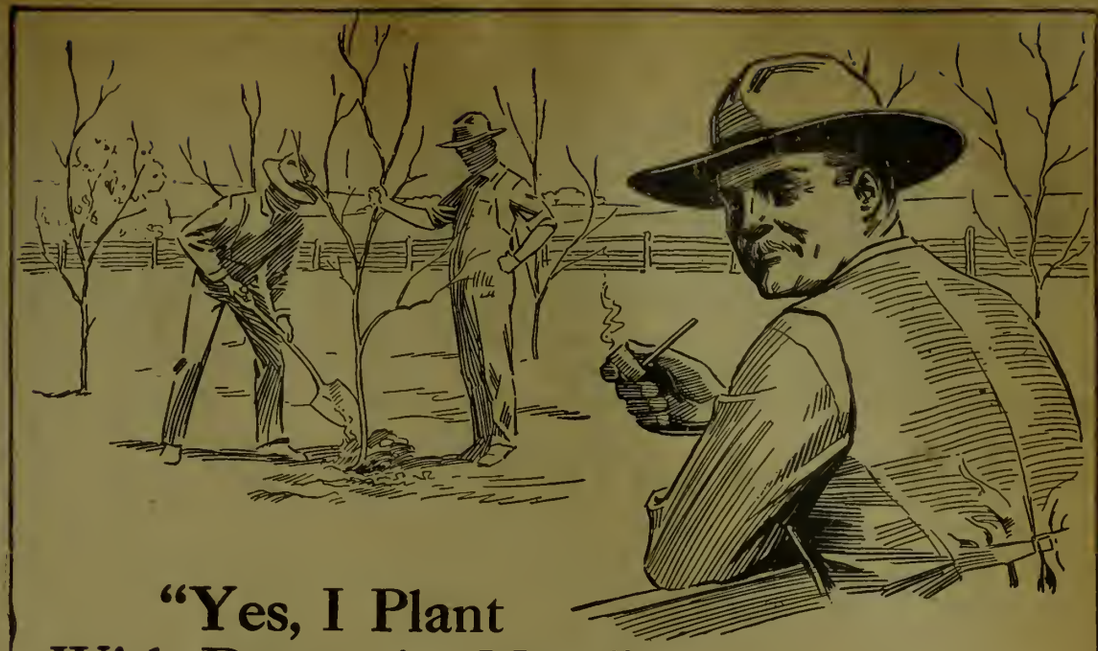
Well-kept goats are quite particular in regard to the cleanliness of their feed and drink, and will only do their best when conditions of cleanliness are maintained.

Goats in milk should be fed twice daily. The concentrated portion of the rations is, as a rule, fed in a small box or pan at milking time.

When feeding alfalfa hay it is always best to tie the goats and to feed the hay in a rack to prevent waste. Stanchions similar to those used in feeding calves may be used in feeding goats to milch goats.

A feeding box used on some goat farms is made six feet long, two and one-half feet wide, and one foot and inches deep. This is covered with slats to prevent the goats from tossing the hay into the air and wasting it. The goats are usually fastened to the box with snaps.—E. C. Voorhies.

Fumigate the lice. Lousy hogs need valuable feed. Crude oil applied on the backs of the hogs with a brush will kill the lice. Dipping or spraying with a coal-tar solution and repeating in eight or ten days is another method (Use a good brand of stock dip. Directions for solutions are usually printed on the containers A 2 per cent solution is about right.)



"Yes, I Plant With Dynamite Now"

"The orchard that used to occupy this ground was planted in spade-dug holes. It never amounted to a hill of beans.

"But last winter I got hold of a book on the use of dynamite in planting. Then I asked some of the neighbors about it. I found that a lot of them, the very fellows who raise the best fruit and the most of it, use dynamite.

"Now I'm making a good beginning by planting this new orchard with

HERCULES DYNAMITE

"I'm saving time and money on the job right now. With dynamite you get about twice as many holes in half the time you do with a spade. But the big point is this—according to what I've learned this orchard will bear a year earlier than any of my others have, the trees will live longer, they will give better fruit and more of it.

"It's reasonable that they should too. When you dynamite a hole the ground is well broken up. There are no hard sides for the roots to fight with. They just spend their time growing and thriving—making a strong, healthy tree. And the tree enjoys life and does its best, like a boy that's well fed and well clothed.

"If you aren't using Hercules Dynamite for planting write for the book, 'Progressive Cultivation'. It will be worth a lot of money to you. At that it's sent free on request. Just use the coupon below."

HERCULES POWDER CO.

1015 Chronicle Building

San Francisco California

Hercules Powder Company,
1015 Chronicle Building, San Francisco, Cal.

Gentlemen:—Please send me a copy of "Progressive Cultivation." I am interested in dynamite for _____

Name _____

Address _____

War Flyers Need Furs

FUR prices are soaring because furs are going up. Demand for coyote skins and muskrat pelts to line the coats of aviators in France, has put the annual value of Alberta's fur catch at between $10,000,000 and $15,000,000 for the season just past. Some 50,000 coyote pelts included in Alberta's total, that before the war brought $1 to $1.50, averaged this year as high as $15 to $18 in the raw state. Nearly a million and a half muskrat hides will be sent to England for military coats.

Poultrymen who are staggering under the high cost of grains should make a determined effort to displace some of it with green feed.

Too True to Be Funny

Stranger—Farm products cost more than they used to.

The Farmer—Yes. When a farmer is supposed to know the botanical name of what he's raisin' an' the entomological name of the insect that eats it, an' the pharmaceutical name of the chemical that will kill it, somebody's got to pay.

FUEL THE BURNING QUESTION **COST**

You Can Heat and Save With a Five Dollar "Premier"

Clean scientific gas from coal oil. No danger, smoke, soot or fumes. Easy to install—any stove—no changes to make.

"The Simplest Thing in the World"

By Return Mail $5.00, Prepaid

Unlimited Guarantee

"RIGHT" FROM THE HOME OFFICE AND FACTORY

246 South Spring Street, Los Angeles, Cal.

PREMIER BURNER CO.

RHEUMATISM

Use ANTI-URIC, the famous ROOT and BERRY remedy for the cure of RHEUMATISM, catarrh of the stomach and the purifying of the blood; will assist the kidneys; has cured thousands. Contains no opiates or chemicals, and the most delicate stomach can take it. An outfit (two weeks' treatment) contains an 8-ounce bottle of liquid, a box of tablets for internal use and a 1-ounce bottle of oil especially prepared for MASSAGING the parts affected. Results guaranteed or money refunded. Price, $1.50 per outfit. If not at your local druggist we will send prepaid by Parcel Post, C. O. D. Write today.

ANTI-URIC CO., 32 Front St. San Francisco

MOUNT LOWE

PACIFIC ELECTRIC — COMFORT · SPEED · SAFETY

The crowning glory of the Southland—Towering 6100 feet in the air.

Never a More Opportune Time to Behold Its Scenic Beauties

ROUND TRIP FARE FROM LOS ANGELES **$2.00**

Cars leave Pacific Electric Station, Los Angeles, at 8, 9 and 10 a.m., 1:30 and 4 p.m.

Pacific Electric Railway

MICA AXLE GREASE

Easier pulling with Mica Axle Grease because it contains powdered mica, a mineral lubricant, blended with highest-quality petroleum grease by our special process. The mica keeps the spindles smooth and cool—no hot boxes—resists wear and pressure and makes the grease last twice as long. Get a can from your dealer today.

STANDARD OIL COMPANY (California)

How I Made Money in Potatoes

(Continued from Page 3)

I ever dreamed of making in New York in a life time, and living into old age, too.

Had I had the experience six years ago that I have now, I would have had $80,000 or $90,000 to my credit now. Still I am on the sunny side of fifty.

Of course the bulk of my money in raising potatoes has been made in the past two years, since the high cost of living has soared. I expect to raise 158 sacks of the tubers to the acre this present year and I am sure that they will sell at three cents a pound or to yield over $400 an acre gross.

He Rents the Land

That is pretty good for land which was sold in 1905 for $70 an acre and in 1910 for $150 an acre I own most of it and lease part of it.

Because I want to raise potatoes constantly, and because a rotation of crops is necessary for good results, I do not buy the land. I want to rent land and move my potato fields around the district, selecting a new field of operations at least once in two years. I have been told that my manner of operating my potato crops may be interesting. In the first place, I grow but one crop of potatoes a year on any land. In this region many men grow two crops—a spring and fall crop—on their land, but that is quickly ruinous to the soil. The potato is peculiar in taking vitality out of any soil. But so far I have had excellent success in planting melilotus clover each spring and plowing it into the land during May as a fertilizer for the fall planting. It has been a big success so far, at least. Melilotus is the most wonderful enricher of soil for potatoes yet known.

How to Prepare Seed

In the Chino district, as in all interior ranching districts in Southern California, the potato grower must have irrigation water. The men who grow spring crops of the tubers need no irrigation for the rains are almost ample for bringing the yield to harvest in June. The one essential in potato growing is the seed and its preparation for the soil. I prefer White Rose and have tried two other varieties. The White Rose is for me the best producer and has best call in the market. Besides it is fine keeper in our lands.

I cannot impress upon any grower's mind the fact that he must take great care in the way his potato seed is cut in pieces for seed I have had many a quarrel with my help because they would not cut the seed so that two eyes only appeared in each piece of the seed. Each piece should be of the size of three cubes of sugar, and no pieces should be so thin that it will dry in the ground before it sprouts and takes root.

So many growers are so economical that they will cut the seed potatoes down to almost parings, which is labor and cost of seed lost. Between seven and eight sacks of potatoes to the acre are planted. From them I have had as high as 163 sacks per acre. And above all, never let the seed get dry before it goes into the damp soil. I have seen so many farmers who have planted dry seed and then wondered why they had such poor luck in their potato fields. Why, I have had some of my plantings take place in the dawn of morning to be sure that the seed was still holding its juice. Cutting and planting potatoes can only be done by hand. No machine can do the thinking that is necessary. No machine can properly cut potatoes and no machine can plant exactly right.

One Piece in a Hill

In planting the seed, but one piece of potato should be put in a hill I have seen machines which put three or more pieces in a hill and the result was a hill of tiny spuds of no value. The hills should be eighteen inches apart and the rows should be twenty one inches apart.

Fall planting in this region must be done by the middle of August to make sure of maturity before the early winter frosts set in. It takes about 100 days for a potato to mature from seed, and sometimes that is too short a time. The longer a potato is allowed to mature in the ground, the better are its keeping qualities. That is the reason so many people think spring-grown potatoes are poor keepers. The fact is that most of them are taken out of the earth in June to prepare the field for planting another crop in August.

Easily Grown Here.

In California, potato growing is attended by much less care and risk than in any other part of the Union so far as I have been able to find out. In the East the Colorado potato beetle has consumed millions of dollars' worth of spuds each year, and here it is unknown. A dozen kinds of worms attack potato vines in the Middle West and are never found in Southern California. Here our only trouble is an occasional attack by a peculiar variety of aphis, in warm weather after a long wet and cold spring, as last season. The aphis never attacks the fall crop.

But the one great care that must be exercised in irrigating is to keep the water from the potato plant itself. The water must be confined to the furrows and the plant must be wet by induction through the soil, never directly. Water on a potato plant will cause knotty and gnurly spuds. I have learned that fact by bitter experience.

Some growers top their potato vines to hasten the growth of the tubers, but I have tried that with poor success. The only real dread the potato grower has is that of frost. He may get it late in the spring and he is apt in Southern California to get it in November on his fall planting. If all goes well, he will have his crop brought to maturity by the first of December, and that is the case this season. The potato grower is going to make a wad of money, for potatoes are going to be high this winter, in any event over two and a half cents a pound.

Sunday Work on the Farm

RURAL churches of Indiana in recent conference decided that it is quite right and proper to do farm work on Sunday if that Sunday work is necessary to produce food crops to help whip Germany. The reason given for this position was the conviction of Indiana rural ministers that Germany is the worst enemy of civilization, and of every church of civilization—of all religion everywhere, that is worthy the name of religion; that the victory of the barbarous Huns would be literally the victory of the devil and the triumph of that pagan monstrosity created in the Kaiser's savage and sacrilegious mind and called by him "the good old German gott"; in short, that every church in America is fighting for its existence, just as every other component of civilization is fighting for its existence, and that if Sunday work in saving crops will help overthrow this bestial menace it becomes verritably a churchly work to do.

This conference of the rural churches of Indiana was held at Purdue University under the auspices of the Department of Agricultural Extension.

Give the pigeons salt by mixing salt and bonemeal in 1 to 10 proportions and put the mixture in a hopper where it will remain clean and dry.

Fruit-Livestock Combination

Good Idea in the State of Washington

By Charles Philip Norton

TO SOLVE the growing fertility problem of the famous Yakima Valley orchards, in the State of Washington, the fruit-livestock combination is becoming popular. Practical results are enriching the farmers. Commercial fertilizer is now an orchard luxury. War doubled the price. By raising alfalfa on orchard lands, valued at $500 to $2000 an acre, providing the cattle with hay and returning the manure to keep up fertility, a solution of the problem has been found. The land is put upon a sound fertility basis and the profits from both orchard and and the rougher range land are increased substantially.

Scrub livestock is outlawed in the Pacific Northwest. Scientific farming is now general. Competition and market demands are such that all products must be of standard quality and condition. Freight rates are too high to risk an attempt to market an inferior product.

Climatic conditions make the Pacific Northwest a livestock paradise. The herds live out-of-doors the greater part of the year. They enjoy the sunshine, the cool nights and the long growing season. Show-ring prize-winners is the result. Record crops, too. The volcanic ash soil produces bountifully.

The same conditions which produce prize-winning cattle, sheep, hogs and poultry also produce the best industrial results.

The whole West is proud of Seattle's record in building and delivering, down to June 14, one-fourth of the nation's emergency fleet, for this is not a local but a western achievement, and proof of western resource and spirit. Seattle's shipbuilding triumph is a national and western epic. The Evergreen State's workers are living up to their motto:

In demanding only pure-bred herds, the northwestern farmers are exemplifying the western spirit. Famed for the purity of their Americanism and their lofty standard of achievement, our people demand first rank in everything—children, livestock, all the products of orchard and farm, and "ships—more ships" to win the war for freedom.

This spirit was evinced even at a baby show, under auspices of clinical experts, held recently at Seattle for the purpose of "raising better babies and more of 'em." The announcement said: "Only healthy babies should be offered for examination." See the point? The defective babies, who needed attention most, were left at home. Result: An unexceptionable lot of prize babies. No scrubs! And scientific efforts are being made to eliminate scrub daddies and mammies. It is, indeed, a great and far-reaching movement — starting with orchard and farm and reaching out through every phase of our complex and seething social life.

Warned that Alaska must mave a dairy animal perfectly adapted to the severe winter of the northland, the farmer-scientists of the Pacific Northwest are figuring on a cross between the woolly Thibetan Yak and the best of their pure-bred stock. They have heard that the yak-cow is a superior milk producer; that the yak of both sexes thrives upon coarse grasses and mosses that only a goat would eat; that they are clothed with heavy hair-fur, rendering them immune to cold; that they are self-supporting; that the yak meat is of finer fiber and quality than the best beef; that the yak, in brief, is altogether superior for beef and dairy purposes in the North. Therefore, when the farmer scientists of the Evergreen State get through experimenting, this vital problem probably will have been solved. Whatever the result, the livestock industry in Alaska in the next few years is destined to be the wonder of the world.

If the yak claims prove true, as world travelers assert, how can the livestock educators ever be pardoned for failing through generations to discover the yak?

Tangelo, the New Fruit

A NEW type of fruit, which has been named the tangelo, has been produced by the United States Bureau of Plant Industry through a cross between the tangerine orange and the grapefruit, or pomelo. As a class the tangelos resemble round oranges more than either of their parents and are exceedingly variable. Two well-recognized varieties have been thoroughly tested and have been distributed to co-operators for further trial.

The tangelo has little acidity and resembles a tender and good-flavored orange more than a grapefruit or tangerine.

Praise From a High Source

Federal Farm Loan Board,
Washington, July 18, 1918.

Mr. H. H. Charles,
23 and 25 East Street,
New York City.

Dear Mr. Charles:

That's a very good editorial, indeed, in Orchard and Farm entitled "Buy Farm Loan Bonds." I am going to reproduce it in our Federal Bulletin.

Thank you for calling my attention to it.

Yours sincerely,
HERBERT QUICK,
Federal Farm Loan Commissioner.

Shotguns and Shotshells
for Shooting Right

GETTING the bulge on your year's work means a lot—a lot more if you love dog and gun. By getting yourself in trim with the *right* amount and kind of recreation, you will tackle next year's work with more vim.

There is much additional satisfaction in store for you if you buy a Remington UMC Pump Gun or Autoloading Shotgun for your days off this Fall. When your well earned chance comes to bag some game, you will then have in your hands a gun made to shoot *right*. Guns of the same design helped win the Grand Prize, highest of possible honors, "For Modern Firearms and Ammunition," awarded to Remington UMC at the San Francisco Exposition.

The wonderful Wetproof process invented for and exclusively used in the manufacture of Remington UMC Smokeless "Arrow" and "Nitro Club" Steel Lined Shotshells, has been pronounced the greatest advance in shotshell manufacture in a decade. *These shells as now made are the first completely wetproof shells.* Another Remington UMC contribution to shooting *right*.

In *black powder*, buy the old reliable Remington UMC "New Club," now Wetproof sealed at turnover and top wad.

Sold by Hardware and Sporting Goods Dealers in Your Nearest Town

THE REMINGTON ARMS UNION METALLIC CARTRIDGE CO., Inc.
Largest Manufacturers of Firearms and Ammunition in the World
WOOLWORTH BUILDING . NEW YORK CITY

PIPE

For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

NEW and 2nd Hand

Screw Casings Fittings and Valves Guaranteed For Pressure

PACIFIC PIPE CO.

TESTED and GUARANTEED.
Main and Howard Sts., San Francisco.

A WADE does 10 mens work Saws 25 cords a day!

A money-maker and hard work saver for land clearers and wood-cutting contractors. One man can move it from cut to cut. Simple and reliable. Hundreds in use all over the U. S. When not in use for wood cutting, the 4 H. P. motor will run mills, churns, pumps, etc.

Backed by a 53 year reputation and absolute guarantee.

"My Wade saw is cutting wood for less than 3 cents a cord."—F. J. Williams, Burns, Ore.

"These sawed through five-foot solid oak logs at the rate of one foot a minute."—N. P. Myers, Lodi, Calif.

America must burn more wood for fuel. One Wade will do 10 men's work at one-tenth the cost. Write for free Book, "How Dan Ross cuts 40 cords a day," full details and special price.

INTERSTATE TRACTORS

13-30 "THE PLOWMAN" 15-30

See these tractors operate at Tractor Show September 17th to 21st, inclusive, Space No. 13.

Watch this "PLOWMAN" get down and pull. Read these specifications.

SPECIFICATIONS 15-30

DRAW BAR—15-H. P. BELT—30-H P.
RADIATOR—Perfex, extra size, non-freezable. Cooling—triple type, fan, pump and syphon.
MOTOR—4-cylinder Buda YU, 4½-in. bore, 6-in. stroke. Lubrication—full force feed under pressure to all bearings.
IGNITION—High tension magneto, with impulse starter.
CARBURETOR—Bennett producer type multiple jet 1½-in. Adapted for kerosene or gasoline.
AIR CLEANER—Bennett Centrifugal, making motor dirt proof.
CLUTCH—Multiple dry disc type, eight discs, raybestos facing.
GOVERNOR—Our own enclosed fly ball governor.
TRANSMISSION—Foote standard sliding gear, running in oil. Two speeds forward, one reverse. Plowing speed, 3 miles per hr. Reserve speed, 2 miles per hr.
BEARINGS—Long series Hyatt Roller Bearings used throughout transmission.
GEARS—Drop forged, heat treated, hardened.
BELT PULLEY—8x14 inches, 590 r. p. m. Belt speed 2600 ft. per minute.
DRIVING GEAR—Solid cast iron ring gear of extra strength and width.
REAR WHEELS—French & Hecht 60x12-in., Hyatt Roller Bearings in dust proof hubs.
FRONT WHEELS—French & Hecht 30x5½-in. detachable rims. Hyatt Roller Bearings, dust proof hubs.
BRAKE—Raybestos lined band brake.
FRONT AXLE—Oscillating, short turn.
FRAME—Heavy 5-in. steel channels, 11½ lbs. to the ft.
WEIGHT—Total approximately 4800 lbs. On front wheels 1850 lbs. On rear wheels 2950 lbs.
TURNING RADIUS—Inside. 15 feet. Tread, 4 ft. 11 in.
DIMENSIONS—Height of tractor, 5¾ ft. Length over all, 13 ft. Width, 5½ ft. Wheelbase, 99 in.

DOAK TRACTOR COMPANY

Los Angeles. 236 Marsh-Strong Bldg.
San Francisco. 50 Eighth St.

An Opportunity for Live Agents.

Bonds Will Be Ready

PURCHASERS of Fourth Liberty Loan Bonds may have delivery the first day of the campaign, according to plans now being made by the Treasury Department. The Bureau of Printing and Engraving is making thousands of the bonds daily and a big supply will be ready when the campaign opens September 28. The bonds are similar in form and design to those of the Third Loan.

E. W. Wilson, director of sales of United States certificates of indebtedness for this Federal Reserve District, believes that the third allotment of $36,000,000 offered on July 23 will be oversubscribed sufficiently to make up the deficit of the first two allotments. Although the Nation oversubscribed these certificates this district is now $19,000,000 behind its quota.

Get rid of intestinal worms. Turpentine is a common remedy and is easily obtained. Dose, one teaspoonful for every 80 or 100 pounds live weight. Give daily in milk emulsion for three mornings. Mornings are best because the digestive tract is nearest empty at that time. Follow with a dose of castor oil.

Roosters and Bad Eggs Must Go

NOW that egg buyers are licensed by the Food Administrator and are allowed to buy only candled eggs, the person who brings bad eggs to town will not be able to sell them. In addition to having the eggs turned back to him, he will risk fine or imprisonment for violating the Pure Food Law in offering to sell eggs unfit for use.

The farmer who has not sold or confined all mature roosters has no right to complain about the bad eggs the dealers find in his basket. He says that in spite of the urgent appeals that were made before hot weather began, for all poultry keepers to dispose of their roosters, thousands of male birds are still at large. Fertile eggs are the kind that spoil, and the rooster makes the eggs fertile.

Awake to War Needs

NO order of any kind in the country is more awake to war demands and necessities than the Grange. In each community it is doing its full share of war work and every day brings new evidences of the inspiration and effective force it is bringing to bear upon the problems that now confront our people.

More power to the Patrons of Husbandry!

Always Breed True to Type

By D. D. Aitken,

President of the Holstein-Friesian Association

I AM thoroughly convinced that type is one of the most important principles that must be adhered to by the dairyman. I am satisfied that 80 per cent of all the high record cows are reasonably true to type proving beyond all peradventure that type and high production can be attained.

No breeder should presume to use a sire whose offspring has sloping rumps and bad udders, no matter what the record of his dam may have been

The fact that animals do not breed true to type is evidence itself that we have neglected type to a greater or less extent in the past.

I believe, in awarding premiums, that large production should stand for a certain number of points. On the other hand I do not believe that premiums should be awarded at all to an animal that is not a credit to the breed, regardless of whether or not there was any competition in the ring.

I have visited fairs and seen shows of livestock, not only those of the Holstein-Friesian breed, but of others, where there was absolutely no excuse for giving them a premium; where they were not a credit to the breed, but rather a discredit, but because of no competition they were awarded prizes.

This, it seems to me, is absolutely wrong, and I believe that in awarding premiums at fairs, we should have some rule laid down clearly defining the requisites necessary to entitle animals to prize money.

Breeders Not Particular Enough

I think the breeders, generally, realize that we have not been particular enough about type; they realize that there are a great many herd sires in service that ought not to be considered or tolerated. They are there simply because of the records of the dams. In some instances the calves or get of the animal are creditable, and in such instances they do no harm, only as it may affect future generations of the breed.

I think, also, that those breeders who think records alone fix the price are wrong. I have seen men put 30-pound cows in a sale ring for less than half the price brought by a typey cow with a very much less record, showing that type is considered in the auction ring as helping to fix the value of the animals, and I believe it would be a very hard matter to sell a real sloping herd sire at any price, at the present time, regardless of the record of his dam.

Now, of all times, when the increase of the herd is absolutely necessary, when within a few years, at most, we will be called upon to furnish millions of dairy animals, it behooves us to be able to furnish animals of quality, and it is up to the breeders of Holstein-Friesian cattle to set the pace, not only because of the profit that is sure to enure from such course but because of a duty we owe humanity. Without these animals, and plenty of them, the conditions would be lamentable indeed. Without milk and its products the human race would deteriorate and the mortality among children would be doubled and quadrupled. Then from a patriotic standpoint, from an interest in humanity as well as from good business judgment, let us resolve to increase our herds by animals that will reflect credit upon the breed as well as the breeder.

Campaign of Education

Breeders of dairy cattle have to lead the way to success for the dairy industry and it is proper that they should. They are just commencing to see the light which was absolutely obscured until recent years. They have just commenced to realize that it takes brains, system and good management to engage in the business of manufacturing dairy products. They have just commenced to realize that it is a big business in which they are engaged, and one that requires business methods for success.

The dairy farmers propose to tell the public about their product and educate them as to its value, realizing that with the great merit behind the product there is no possible reason why, with properly disseminated information, there should not be such a demand created as would take all the dairy products at a reasonable profit over cost of production. Our breeders realize that when there is a demand for the dairy products and people are looking about to supply the demand, the inquiry will be for milking machines such as the breeders have to sell.

Dairymen's Part in War

With the coming of this condition we will have the satisfaction of knowing that every dairyman engaged in the work has done a little more than his share in whipping the Hun.

They have produced more food than any like number of men anywhere. Each one of their machines has furnished from six to ten times its own weight in the most nourishing food in the world, and while from age or other conditions they have not been able to fight in the trenches, they have been steadfast warriors in the second line of defense that made the first line possible, and in the enrollment of the census to ascertain where all understand they will have no occasion to feel ashamed for the part they have played in the great world crisis

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Protecting Employes

GROUP insurance appears to be growing in favor as evidenced by the fact that another of our subscribers, Sturges & Burn Manufacturing Company, Chicago, have recently taken out a policy in one of the leading companies which insures every and every employe who has been with the company for a period of 3 months or longer and pays at death to the beneficiary from $500.00 to $1500.00 according to the length of service rendered by the insured.

How to Judge Swine

SIZE is important in breeding swine. A mature sow should weigh about 400 pounds, and the male about 500 pounds. Gilts (young sows) should be well grown before breeding. As a result of breeding undersized young sows we can expect smaller pigs that probably will be lacking in constitutional vigor.

Pigs 10 to 12 weeks of age should weigh 35 to 45 pounds.

Pigs 5 to 6 months of age should weigh 100 to 125 pounds.

Pigs 8 to 9 months of age should weigh 205 to 240 pounds.

Pigs 12 months of age should weigh 300 pounds or more.

Since "like produces like," it is important that the breeding stock be true to type, or, in other words, that its body make-up and general appearance be very similar to the description on the score card. If the breeding stock is off type the market hogs will be of such character that the butchers will cut prices.

Feet and Legs.

The feet and legs are very important They should be short, straight, strong, of medium size, and placed wide apart. If the pig stands up well on his toes and the dewclaws are an inch clear of the ground we can be sure the bone is strong and that the pasterns are strong enough to carry the weight of the animal when fattened.

One important cause of a high dressing percentage is quality. Evidences of quality are soft, fine, silky hair; smooth, soft skin, free of folds or wrinkles; bone of medium size, strong and dense.

Femininity and Masculinity.

In our breeding stock we should consider sex characteristics, as they are strong factors in the production of desirable market hogs. The brood sow should be a good breeder, a good feeder and of good type in order that she may transmit these characteristics to her offspring. She should be short-headed and wide between the eyes. She should be long, deep and roomy in body, wide through the hips, large and full in the heart girth. She should have good quality, good bone, fine hair and be refined about the head and ears Her back should have a strong arch, her rump should be level and full, carrying its width to the tail head Her neck should be light on top behind the ears, but blending smoothly into the shoulder. Twelve well-developed teats on a neat, nearly straight belly line should be found. The male should be similar save the refinement; that is, he should be heavier in shoulder and possess a rugged masculine appearance In either male nor female should the jowl be flabby, coarse or wrinkled; it should be full, firm and compact.

Bright, expressive eyes and an active disposition are essential. These will insure exercise, which is necessary. A wild, nervous, mean sow will ofttimes kill her young either through accident or design. On the other hand, a lazy, sluggish sow that will not exercise is very likely to crush her pigs by accident.

Breed Characteristics.

While all breeds of the same type have the same general characteristics, each breed has its own special characteristics. These are manifested by color markings, set of ears, shape of head of face, etc. We should select breeding stock that is true to breed type and characteristics, for such are most apt to produce pigs like themselves and have large litters.—J. D.

Cost of Tractor Outfit

WHILE the cost of a tractor should not be the only consideration, it is one of the first points which a farmer must consider. The prices of the various makes of outfits vary considerably for machines of practically the same capacity, owing to difference in quality, sales systems, efficiency in manufacture, quantity produced, etc.

It is a grave mistake to sacrifice quality for a saving in the first cost, since there is no other farm machine in which reliability and serviceability count for more than in the tractor.

On the other hand, it is poor management for a farmer to invest too large a part of his capital in power. The desirability of further standardization and quantity production of tractors, in order to reduce the first cost, is obvious.

The price which a farmer can afford to pay for a tractor for use on his farm depends upon a number of factors, such as the amount and value of the work which the machine will perform annually, the value of the horses which it will displace, the value of the man labor saved, and the amount of increased returns which reasonably may be expected from its use.

The prices for both tractors and the implements for use with them have been considerably increased during the last two years, owing to the advances in costs of both labor and materials required to produce them.

The prices paid for the three sizes most commonly bought during 1917 on 140 Illinois farms averaged about $800 for the 2-plow, $1100 for the 3-plow and $1400 for the 4-plow machine, while the prices for the plows for use with them averaged about $115, $165 and $235, respectively. In all cases the prices, of course, varied considerably according to the make and quality of the machines.

State Fair Dairy Exhibits

DAIRY stock breeders showing at the California State Fair, August 31 to September 8, will receive cash premiums totaling $7700.00.

Representing several hundred dollars' increase over the largest amount given at any previous State Fair, the size of the prizes is concrete expression of the directors' desire to encourage in every way possible the raising of purebred dairy stock and thereby insure heavier production of much-needed milk and butter fats.

The fair's classifications provide money prizes of $1114 for each of the four leading dairy breeds, Holstein, Jersey, Guernsey and Ayrshire. Supplementing these, the Holstein-Friesian Association of America offers $278.50, the American Jersey Cattle Club $260 and the American Guernsey Cattle Club $100.

Premiums in other breeds are: Brown Swiss, $595; Dutch Belted $595, and Dairy Shorthorns $785. In the dairy cattle production classes, $330 is offered for the three-day butter fat production contest, open to all breeds, and $300 in the cow test association class.

Adding a new classification to the regular list, prizes of $60 in each breed will be given for five cows in milk.

Imported Brilliant Spray, grand champion Jersey cow at the 1917 California State Fair, has changed her residence from Oregon to California and will be shown at this year's fair as a California entry.

Dr. H. W. Hand of Glenn, Cal., president of the California Jersey Breeders' Association, recently purchased the animal from C. P. Hemhree of Monmouth, Ore., and has entered her in two classes at the 1918 show, that for four year old cows or over and the Register of Merit class.

Dr. Hand will also exhibit six other Jerseys this year, a junior yearling bull, aged cow, three-year-old cow, two-year-old cow, junior yearling heifer and junior heifer calf.

DUDLEY Business College
San Francisco, Cal.
2632 Mission St., Near 22nd
DEPARTMENTS: Commercial, Stenographic-Secretarial, Comptometer-Calculators, Civil Service, English-Preparatory. Best Bookkeeping Course given on Pacific Coast. A high-class school that gives the service. Good positions for graduates. Write for New Catalog. Enroll any time.

FARM MACHINERY WANTED
SCOTTY PAYS CASH
for any kind of farm machinery you don't need and want to sell. No matter what it is, write us, giving us a good description of what you have. We want hay balers, cultivators, plows, harrows, drills, harvesting machinery, threshing machines, feed cutters and grinders, fanning mills, windmills, gasoline engines, tractors, blacksmith tools, belting. In fact, anything and everything you have to sell.
SCOTTY'S PLACE
135 S. Los Angeles St., Los Angeles, Cal.
We carry the largest stock of new and used farm machinery of any firm in the State. Visit us or write us and save money.

When answering advertisements, always mention Orchard and Farm.

The Speedy Stitcher
Sews a Lockstitch Like a Machine.

The awl that meets every condition for a handy tool to mend old or new harness, saddles, gun cases, suit cases, shoes, carpets, grain bags, awnings, pulley belts and tie comforters, etc. Farmers and stockmen use it to sew up wire cuts in livestock. The awl is well made and with ordinary care will last a lifetime. Nothing to get out of order. All parts are interchangeable, so if one part gets lost or broken, you do not have to throw the tool away. We supply different parts. Use any kind of lockstitch machine needles; they are kept in the hollow screw-top handle. Extra needles with each awl. This valuable tool is given free with one year's subscription to Orchard and Farm for 50c. Mail your order today. Orchard and Farm, Los Angeles, Cal.

Try COULSON'S EGG FOOD
FOR GREATER EGG PRODUCTION
FULL PARTICULARS IN FREE BOOK
"CHICKENS FROM SHELL TO MARKET"
Coulson Co.
PETALUMA, CAL.

Here's a Mighty Attractive
FARM HOME
It's a "NATIONAL"

When You Build, Build Right
Get our new 1918 catalogue and profit by our service. The cost of your house is a serious problem; we can assist you in an intelligent, experienced way. You'll be surprised how advantageously you can buy by dealing direct with us.
Send 6c for Our New 1918 Plan Book.
NATIONAL HOME BUILDING CO.,
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Vancouver, Washington.

Patriot FARM Truck

Built for Country Roads
Built for Country Loads

The Patriot is the first Motor Truck built especially for farm work. *It is equipped with a practical farm body,* similar to what you have always used on your farm wagon.

It saves horses and high-priced feed. *It brings better markets nearer,* for with a Patriot you can readily drive loads to a market 100 miles distant.

It lays down 15,000 to 20,000 pounds at market in practically the same time that a team will deliver 5,000 pounds, literally bringing the farm to about one-fourth its actual distance from market.

Business farmers can easily see how such perfect transportation greatly increases the value of their farms, to say nothing of the convenience in being master of roads and weather. Every farmer with 160 acres or more should find out what a Patriot Farm Truck will save. Write for information.

HEBB MOTORS COMPANY
Manufacturers of Patriot Farm Trucks
1371 P Street **Lincoln, Nebraska**

Lincoln Model
Capacity 3000 lbs.
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Capacity 5000 lbs.

Powerful Patriot Hand Hoist by which the body, when loaded, may easily and quickly be elevated to dump its load.

A VALUABLE BOOK

For Progressive Farmers
Making the Farm Pay
Money-Saving and Money-Making Methods

Throughout the text of this great book, the reader is given the results of scientific research, [illegible] with successful experience, by use of [illegible] such improvements as can be readily understood by those who have not had a scientific training. Thus any farmer who [illegible] to make the most of his labor and realize the greatest returns for his investment will find in this volume a priceless guide for everyday [illegible].

This work has been divided into departments, each covering subjects of vital importance, and each prepared by a specialist in his line, who has devoted his life to thought, study, experiment and practical experience to his special subject. The list of authors whose names are familiar to wide-awake farmers will be found in accompanying [illegible] of book in connection with the subjects covered by each.

One Practical Idea Taken From This Book Worth Many Times the Cost of Entire Volume

It is needless to say that the advantages to be gained from a single practical idea, taken from any of these departments and put into practice, is worth many times the small expense incurred adopting the more approved methods.

This volume consists of over [illegible] pages handsomely bound in cloth, size [illegible] inches long, [illegible] with [illegible] illustrations, on good book paper, [illegible] drawings and half tones with [illegible] chart [illegible].

The book will be [illegible] postpaid, including three years' subscription (new or renewal) to Orchard and Farm, for $[illegible]. If after receiving Practical Farming you find it is not just as advertised, and you are not thoroughly convinced it is a wonderful bargain, return it at our expense and we will cheerfully refund your money.

Mail your order to Orchard and Farm, Los Angeles, Cal.

Evils of the Single Tax

(Continued from Page [illegible])

[illegible] hold, bare [illegible] wrong," as Henry George [illegible] the institution of private property in land has proven itself to be a very wholesome institution, [illegible] and [illegible] and giving to the great mass of the people and to industry and commerce generally that safety and security which is essential to the pursuit and achievement of the greatest [illegible] and prosperity to all.

The [illegible] of the Single Tax amendment, which is to be voted upon in November, claims that land values are "unearned increment" and that therefore the owner has no right to it. By this is meant that the owner of the land gets rich without any labor or sacrifice to deserve it. This is, of course, based upon the false premise that the only just basis of property is to be found in the "natural right to the fruits of one's own labor." If we disagree with this premise the question as to whether it is earned or not ceases to be of any importance. If the farmer was satisfied with one dollar per bushel for wheat but the war scarcity carried the price to two dollars per bushel, they would argue that the farmer did not earn the extra dollar. The only thing of importance is whether or not the extra dollar would stimulate new planting so that the next year will produce abundance of the product.

But the Single Taxers believe that the taking of the "unearned increment" for private use injures those who are not landowners, and in other ways as well, retards progress. They claim that the people have created the increased value, therefore the value belongs to the people and not to the owner of the land. They constantly point to cases in which some lucky individual acquired good pieces of land early in the development of our State, and without improving them have held until the values have greatly increased. They claim that this was done at the expense of others and to the detriment of all. They leave the impression that all land is advancing rapidly in value and that every landowner is growing rapidly rich. There is never a note of sympathy for the man who has suffered a loss in his investment, as is often the case, for it is a well-known fact that as land in one locality increases, it often happens that property in another locality suffers a corresponding decrease.

A Single Tax Oversight

If [illegible] propose that the people take the increase of value of one property, would it not be just and right for the Government to refund to the unfortunate owner any decrease which he may have suffered? But the Single Taxers have never suggested any such equitable adjustment.

The fact is, in the great majority of cases the pioneer who took up a homestead [illegible] in toil, privation and years of weary waiting all and more than he ever got back when he retired with his gains, [illegible] will [illegible] them.

According to the United States census, the average farm contains 138 acres, 75 of which are "improved." How much of the other 63 acres are [illegible] we are not told. The average farm is worth $[illegible], of which $[illegible] consists of buildings, machinery and tools, and $[illegible] in live stock (the [illegible] value of buildings and improvements in California is very much [illegible] than the above figures), so the average value of land is $[illegible] per acre.

Such an average farm brings a money income of $[illegible] per year gross, and after paying expenses, leaves $[illegible] to the farmer for his labor and a return upon his investment. This has to keep, clothe and educate his family for a year.

We submit that this statement presents [illegible] not [illegible] attractive to the average wage-earner of today who is being paid from $[illegible] to $[illegible] per week for his services, and who works eight hours, while the farmer is found plodding along from sunrise to sundown.

Statistics show that only five per cent of the farmers of the United States make over two thousand dollars per annum. What would become of these farmers if the Single Tax were in effect?

The farmers in Missouri when recently called to vote upon a Single Tax amendment, which proposed to take away from them what little they were getting from their land, rose in a mass, stormed their representatives, [illegible] the Single Tax [illegible] and voted the measure down [illegible] to [illegible].

Wrong Ideals of Landowning

The Single Taxer speaks of the landowner or "the landlord," as he prefers to call him, as someone apart from the rest of society, as though he were some great octopus about to swallow up the balance of the community.

But is not the landowner, in the majority of cases, one of the people of that community, and does he not share the common burdens, work and plan for the common advancement, pay taxes (real estate in all its forms pays over three-fourths of the State and local taxes in California), contribute his share to the support of churches and charities, invest his capital in public utilities and other enterprises, in banks and all the other necessities and advantages of community life?

Who is the community if it is not all of us? Is not the landowner one of us?

The war has shown us that the whole world is bound together industrially and that a severe blow to industry at one point is felt the world around. Thus the common people of America have to pay a high price for the necessities of life, a part of the common cost of the war.

So, too, it would be if we strike a blow at the farmer and other landowners. Every other industry in the [illegible] would feel the effects. The "unearned increment," so-called, helps to pay the cost of [illegible] crops. It encourages and in part pays, as we have seen, for the efforts of the producer. It stimulates the upbuilding of cities. Confiscate land values and you ruin a large class who will not only be forced to curtail their demand for the products of others, but by [illegible] other industries, will reduce wages there as well, and make conditions harder for all.

It is impossible to bring about so vast a revolution without causing suffering to every member of society.

The Thing to Do

The youngster had just been told the story of Daniel in the lions' den, and the [illegible] had been put to him:

"What do you think Daniel did the very first thing when he found he was saved from the lions?"

The child reflected a moment, and then replied: "I suppose he telephoned home to his wife to tell her he was all right."

In the opinion of the American sheep raiser, Berlin is the only place that would license the sheep-killing dog.

VAUGHAN
DRAG SAW
CONSERVE YOUR ENERGY

With the Vaughan Portable Drag Saw you can cut more cordwood in a day than you could ever cut by hand in a week.

And you've got lots of energy left for chores at night when you're thru.

Write for illustrated descriptive folder, prices and terms.

VAUGHAN MOTOR WORKS
INCORPORATED
Largest Mfrs. of Light-weight Drag Saws in the World
Dept. R—East 9th and Main Sts.
PORTLAND, OREGON

Don't fail to mention Orchard and Farm when you answer advertisements. It is to your advantage as well as ours.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand.

Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyard, the best for bleaching purposes. LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.,
San Francisco, Cal.

California Livestock Show

THAT the Federal Food Administration endorses and approves all livestock exhibits, and features of any kind that tend to educate and promote the breeding and conservation of the best in livestock throughout the country will interest many persons. The letter quoted below has been received by Edgar J. De Pue, president of the California International Livestock Show Corporation of San Francisco, from Federal Food Administrator Herbert C. Hoover:

United States Food Administration,
Washington, July 25, 1918.

E. D. De Pue, Esq.,
San Francisco.

Dear Mr. De Pue:

I hear with great pleasure that a group of representative men have formed the California Livestock Show Corporation. I am a firm believer that such enterprises not only further production in this country, but will greatly improve the quality of production and have the utmost educational value in placing before producers, national necessities and methods in their attainment.

I wish you every success.

Yours faithfully.
HERBERT HOOVER.

There is no doubt but that the breeding standards of California and the west can be improved, and to this end and to impress this upon the breeders and stockmen is the aim of this show corporation. During the present world conflagration, the demand for meat producing animals will be relentless as each year passes, and the United States must be ready to supply not only her own food, but to supply the demand for the markets of the world for breeding animals as well as other food products at the close of the war, when the fields of Europe will be depleted and nations will turn to America as a matter of course to fill the ravenous gap.

To this end, all livestock shows and exhibits will do their utmost to assist in the conservation of animals and food, and in making educational features along the lines of meat cuts, economical buying, and lectures that will interest not only the stockmen and breeders, but the housewife. At the San Francisco show in November there will be many such interesting features as this, so that the housewife, who today does not know how to buy economically, or which cuts of meat are the best for certain purposes, will have the opportunity to profit by the lectures, practical and illustrated, which will be given at that time.

A Milking Call

THERE is a call to arms from Davis. The dairies need milkers, and the College of Agriculture wants to give them the right kind—all in the way of saving food, and pushing on the war work. So the call goes out to the women. For it's women they want at Davis just now. They have tried them up there at the University Farm, and they like the result.

They want women who will take a two weeks' course in practical dairying, and will then go out to the farms. There will be no fee for the course. The only expense will be room and board, which is from $6 to $8 a week at the dormitory. At the end of two weeks they will be ready to take a position, and milkers are paid from $50 to $75 a month, and found.

Here is an all-the-year-round way to serve the flag.

For information or enrollment, apply to the Woman's Land Army, Underwood, building, San Francisco.

"Slipping" not "Saving"

"I kept slipping back two feet every time I went ahead one." That's what the small boy gave as an excuse to his teacher for being late for school one winter day.

And that's just what is happening to the cow owner who is trying to get along without a cream separator or with an inferior or half-worn-out machine. Like the small boy he is "slipping." He thinks he is thrifty, but for every dollar he saves by not buying a De Laval he loses two through not having one.

It *isn't* economy to do without labor saving and money saving and food saving machines. It *isn't* economy to feed 40-cent butter to the calves and hogs.

It *is* economy to buy and use only the best cream separator made—and that's the De Laval.

Viewed from every standpoint—clean skimming, ample capacity, ease of operation, freedom from repairs, durability—there is no other cream separator that can compare with the De Laval.

It's real thrift and genuine economy to buy a De Laval Separator NOW.

Why not see the nearest De Laval agent at once! See a new 1918 De Laval machine for yourself. Try it to prove every claim made for it. If you don't know a De Laval agent write direct to one of the addresses below.

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST.
Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Acme Ensilage Cutters and Blowers, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Catalogs of any of our lines mailed upon request.

61 BEALE STREET, SAN FRANCISCO

When Answering Advertisements Please Mention Orchard and Farm

Correct Lubrication for the Ford Engine

The Ford automobile engine, illustrated here, like all *internal combustion engines*, requires an oil that holds its full lubricating qualities at cylinder heat, burns clean in the combustion chambers and goes out with exhaust. ZEROLENE LIGHT fills these requirements perfectly, *because it is correctly refined from selected California asphalt-base crude.*

"Zerolene is the Best"

—Say leading motor car distributors, because the records of their service departments show that ZEROLENE, correctly refined from selected California asphalt-base crude, gives perfect lubrication with less wear and less carbon deposit.

Most cars are now lubricated with ZEROLENE because their owners have learned through experience that there is no better oil.

ZEROLENE is the correct oil for all types of automobile engines. It is the correct oil for your automobile. Get our lubrication chart showing the correct consistency for your car.

At dealers everywhere and Standard Oil Service Stations.

STANDARD OIL COMPANY
(California)

ZEROLENE
The Standard Oil for Motor Cars

GROCERY SALE

Dari Made Milk
Tall 16 oz. 48 can to cases....$4.70
400 sack Yellow Corn Meal, 10 lb. 65c
1200 cases Pork and Soya Beans
48 12 oz. can cases $2.45
600 cases Tuna Fish, White and
Dark Meat, 48 8 oz. cans, cases $3.25
5000 lbs. Fresh Roasted Coffee
25 lb. $4.35
3000 Tea, Oolong Ceylon-English
Breakfast, 10 lb. $4.50
Mixed Tea, lb.....30-35c
Rice, 100 lb. sack..... $7.35
Sardines, 15 oz. cans, 48 to cases $5.20
Deviled Meat, 4 doz.....$1.85
Corn Beef, 12 oz. can, each....20c
Northern Light Matches, 100
boxes $5.05
All goods guaranteed. F. O. B. San Francisco.

Del Morris Sale Co.

2320 Mission st., San Francisco, Cal.

Groz-It

HIGHLY
Concentrated—Pulverized

Manure

A mixture of cattle and sheep manure from animals fed on cotton seed meal and cake and alfalfa (highly nitrogenous foods) aged for several years under climatic conditions that remove moisture but prevent leaching and fermenting.
No odor.
No flies or insects.
No weed seed or foreign matter.
Many times plant food values of ordinary manure.
Guaranteed contents.
Nitrogen, 1.5 to 2%.
Phos. Acid, P^2O^5, 1.25 to 2%.
Potash K^2O water soluble, 4 to 5%.
We are shipping GROZ-IT in immense quantities to Southern and Eastern States, where present freight rates make it $10 per ton more than cost to you. Place your order now to insure delivery.
Sold in bags or bulk.
Write for circular and prices.

Also ordinary Manure in Carloads

Horse-Sheep-Cattle and Rotted Manures

Pacific Manure & Fertilizer Co.
429 Davis St., San Francisco

Y M C A SCHOOLS

COMMERCIAL
Shorthand, Typewriting, Bookkeeping, Accountancy, English, Penmanship, Mathematics.
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Ideal Schools for Boys.
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Y. M. C. A. SCHOOLS
715 S. Hope St. Los Angeles, Cal.

5 Cents an Acre Cash

Texas school lands for sale by the State at $2 an acre, 5c an acre cash, and no more for 40 years, but 3 per cent interest; send 6c postage for further information.
INVESTOR PUB. CO., Dept. I, San Antonio, Texas.

Farmer Is No Profiteer

IF FARMERS would note how mechanics and professional persons form associations for their mutual benefit, for a standard of profits, and to petition the lawmakers for the enactment of such laws as will protect their lines of business; also, note the benefits derived from such meetings socially, educationally and otherwise, it would seem as though every farmer would unite with the Grange or with some similar order. The farmer feeds them all, and instead of selling separately and often in the cheapest market and by buying separately and often in the dearest market, combine, unite and co-operate.

In the following will be found the approximate profit or gain frequently made in several lines of business: Dealers in men's furnishings have told the writer that 100 per cent is the usual profit sometimes more, and for odds and ends somewhat less.

Milliners make 100 per cent and then some on the cost of goods.

Agents selling books, maps, charts and school supplies make about 60 per cent on the cost or 40 per cent on the selling price.

Grocers expect to gain 50 per cent on tea, coffee and spices; a commodity upon which there is but small profit is sugar; a successful merchant renders the information that he gains 10 per cent.

Take the article, spectacles; those that sell at from $8 to $12 can be purchased at $1.75 to $2.50; those made of cheaper metal, that sell for $4 to $5, cost from 25 cents to 50 cents.

One of the largest profits found in any line of work is in the drug business, especially the prescription department; it is not infrequent that a few drops of one ingredient is used, a spoonful of another with other mixtures, the whole costing but little, and then filling the bottle with sweetened water, called "simon sweet" and selling for 50 to 100 cents. The laconic instruction, "Shake well before using," is very appropriate, for if not done, one is liable to use water.

Doctors ask $1 to $10 a call and often make from a dozen to a score of such calls a day.

Carpenters, blacksmiths, masons and persons in other lines of labor have their unions and set prices to which all agree. Sufficient examples could be quoted to fill a column.

It is unfortunate that the profits or losses by the farmer cannot be given here so as to show the contrast. Each individual will have to make the contrast.

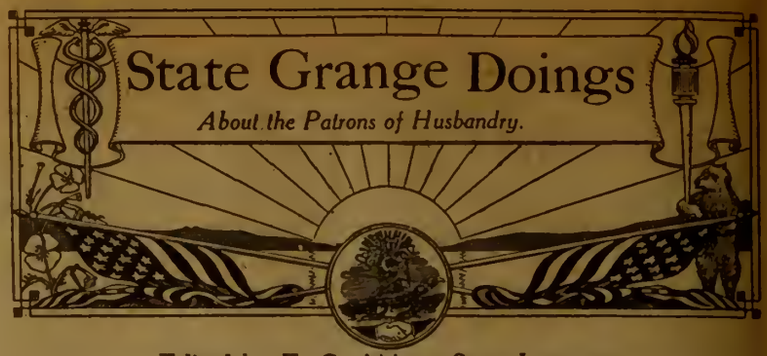
Quoting from a successful rancher: "Every time a farmer turns around he gets it in the neck." The great need for producers is social meetings, unions and co-operation.

Those organizations that have what is termed "balance of power" in a deliberative body have more or less prestige. Farmers have not only this, but they are of sufficient numbers to control the governmental activities, and such being the case, their welfare, socially, politically, financially and otherwise, depends much upon unionism and co-operation.

GEORGE W. SICKLES.
Bothell, Wash.

A Butter Fat Discovery

FOR many years the dairy interests have paid homage to two men who did more than all others toward the development of dairying on the farm—Dr. Carl Gustaf Patrik De Laval, inventor of the centrifugal cream separator, and Dr. S. M. Babcock, who discovered the Babcock test Now a third name has been added—that of Dr. E. V. McCollum, professor of biological chemistry in the Johns Hopkins University, School of Hygiene and Public Health, who has proved that there is some unknown substance contained in butter fat which is absolutely necessary in the human diet if the race is to survive and progress.



Edited by E. C. Abbott, State Lecturer.

Orchard and Farm is the Official Organ of the California State Grange.—Editor's Note.

The Question Box Idea

A LECTURER who is putting forth her best efforts for the benefit of her members is Mrs. Elsie B. Lawson, of Tulare Grange, No. 198, and her work is appreciated by the members of that Grange. Mrs. Lawson does not prepare printed programs for the year ahead, but has a carefully arranged program for each meeting. A question box is a successful feature, the members taking hold readily, and some very timely questions are asked and answered. The plan followed is to have the questions asked at one meeting and answered at the next, thus forming the basis for lively discussions, on which the members have a chance to prepare themselves between the meetings.

Some of the recent topics that have been brought out in this way and which have furnished very lively discussions have been these:

"Shall rural mail facilities be curtailed to reduce Government expenses?"

"What is the greatest problem that confronts the farmers of Tulare?"

"What benefit will the farm adviser be to the farmers of this locality?"

"Is not the farmer entitled to a half holiday each week, and should he not take it?"

"As the Government controls the railroads, what other public utilities should it also control?"

"What middlemen could the farmer best dispense with?"

"What is politics and should not the farmer take a hand?"

Roll calls are a strong feature in this Grange, and the form of responses may help other lecturers along similar lines; here are some of them: "My favorite kind of fruit and the variety;" "Some anecdote or incident about Lincoln;" "Something of interest for farmers that I have recently read;" "The occupation I would like to follow;" "What I saw or heard at the Grange field day that particularly interested me;" "My favorite flower."

This Is Not Right

IT IS not generally known that when our Congressmen framed the bill providing for more revenue for war purposes a section was inserted in the bill exempting Government officials from its provisions, as the following resolutions adopted at the last session of the National Grange will show:

Whereas, The appeal has been sounded by every Government official from President down to save everything possible, give everything possible and subscribe as heavily as possible, to the end that America shall do nobly her part in the world war; and

Whereas, Our Senators and Congressmen have been foremost in urging this three-fold service upon all our citizens; and

Whereas, We learn with surprise and regret that when the opportunity to show by deeds their like willingness to give, our national legislators forgot and carelessly allowed a conference committee to slip into the revenue bill a provision exempting Government officials from its provisions, thereby relieving themselves of $225 annual income tax; therefore be it

Resolved, That we condemn this action as unwise, unjust and unpatriotic, and call upon Congress to repeal this exemption section at the coming session.

Resolution adopted.

Eliminating Middle Men

THE fact that the distributor gets 65 cents and the producer only 35 cents for what the consumer pays $1 for is largely responsible for the manner in which the farmers of this State are organizing and systematizing the different branches of their operations.

The Grange has long tried to correct this uneven distribution by the elimination of so many middle men and it is very gratifying to note the rapid progress that is being made along that line by our California farmers

Is not the position of the farmers of the country manifestly fair and reasonable when they make the terse and concrete statement that if the price of the crops they produce is fixed by the Government, then the price of the farm machinery, fertilizers, etc., necessary to produce those crops, should also be fixed?

Can't Learn Ritual

WHAT would be amusing, if not so pitiful, is the frequent plaint from masters that they "can't learn the ritual," and the accompanying comment that "we lose the services of lots of men who would make good masters if they didn't have so much ritualistic work to learn." All of which seems decidedly far-fetched to some enthusiastic Patrons, especially in these days when degree teams help out so much in this respect.

It is of interest to know that G. D. Hinckley, the first master of the New York State Grange, whose untiring work did so much to put the work on a sound basis, set a good example to all Patrons, in that at the age of 56 years he committed the subordinate ritual perfectly to memory, from cover to cover, in order that he might be in the best position to help all Grange officers and keep them working! This is worth thinking over.

Grange in Oregon

THE work of the Grange in Oregon has grown to such an extent that it now takes practically all of the time of the State Master; at this session a flat salary of $1200 per year, with $1500 additional for expenses, was provided for the office. Two thousand dollars was appropriated for the extension of co-operative buying and selling. C. E. Spence, who has already served as State Master for eight years, was re-elected.

No man is rich enough to eat what his country needs.

A Man of Big Deeds

(Continued from Page 4.)

[illegible]tless he would have given up and [illegible]e no further. But Burbank did [illegible]t give up. He knew by experiments with numerous other plants that al[illegible]ys after a combination of two dis[illegible]ct types of a species all the unusual variations and new combinations would appear in the second and a few other generations. So year after year he kept on with his prune experiments, and at last among thousands of the cross-bred seedlings two or three were found that bore fruit of fine quality, medium size and with only one-half or one-third the quantity of stone. But this result was not satisfactory to Burbank. He set to work to raise thousands of seedlings from these two or three best ones and at last through the long and expensive experiment light began to dawn. Several plums and prunes, equal in every respect to the commonly cultivated ones, appeared, but stoneless! Among these was the prune he named Abundance. It was introduced in California orchards four years ago, when it was hailed with delight by prune-growers because while comparing favorably with the best French prune of commerce, it was in some respects beside stonelessness its superior.

Burbank expects to eliminate the stones from many other fruits beside the prune. He says that the stone is a tremendously expensive part of the fruit, costing the tree more to produce one pound than it does to produce twenty pounds of fruit and being useless to civilization. "Why," he asks, "should it be longer tolerated?"

Tremendous Importance of His Work

To add the title of "author" to that of the "Plant Wizard" may seem a cheap superfluity, for of what greater things than books is he not the originator, or, in biological parlance, creator? A man who, according to the statisticians, has added $20,000,000 annually to the world's food supply, need not bother about other honors in these days of dear living when the most valuable thing one might discover in a treasure chest would be a bag of onions. And yet he keeps on with his plant work the success of which has been mainly due to his everlasting tenacity of purpose, and he continues to tell of it with a pen that does not write always of plants but often of philosophy.

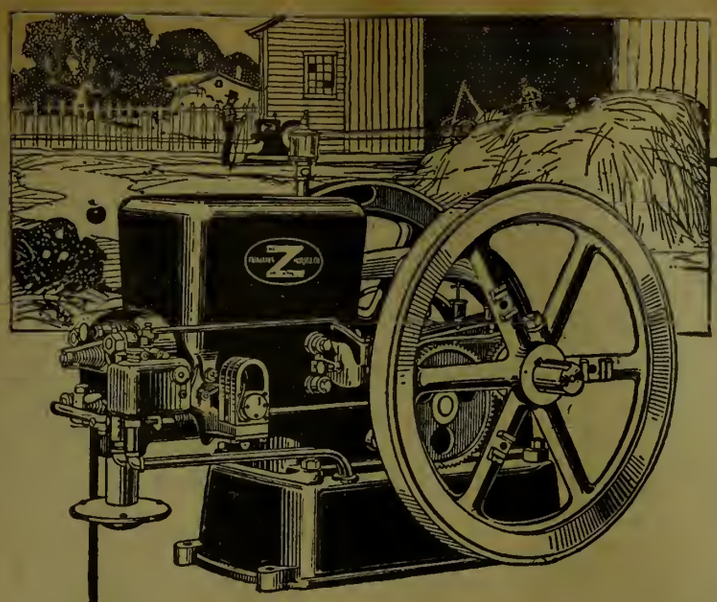
It might seem to those who are ever ready to sneer at the farmer and are always finding something irresistibly piquant in his bucolic ways that a valuable sociological work could not come from a mind so strongly devoted to mere vegetation. But plant and animal life have much in common, and the same sort of inspiration that came to Thoreau while he hoed his beanfield also has come to Burbank and has found expression in recent years in his book, "The Training of the Human Plant." As the author says in his introduction:

"During the course of many years of investigation into the plant life of the world, creating new forms, modifying old ones, adapting others to new conditions and blending still others, I constantly have been impressed with the similarity between the organization and development of plant and animal life."

Study of Heredity in Man

In his book he proposes none of the grotesque and unhuman theories of the terribly advanced eugenist. At the same time he demands for the child of the race an heredity and environment of love, individual training, sunshine, good air and nourishing food.

He condemns the marriage of the physically unfit. He says that the [illegible] that tend to produce men and [illegible] with sane, well-balanced [illegible]s should be investigated [illegible]ally along with the fundamen[illegible]ples of education and he [illegible] for heredity and environ[illegible] training that shall realize [illegible] the ideal



Quality Assured

by Fairbanks-Morse standards throughout this famous "Z" Engine, for which 150,000 practical farmers have paid $10,000,000. Service was proved before all this money was paid—a doubly convincing record.

They bought on demonstrated performance in action—regardless of price—to get the biggest dollar-for-dollar values per H. P. ever built into an engine. They acted wisely.

See These Z-Engine Features

1. Fairbanks-Morse QUALITY.
2. Economical in first and fuel cost and low up-keep.
3. Simplicity and staunch durability.
4. Lightweight, Substantial, Fool-proof.
5. Gun-barrel Cylinder Bore.
6. Leak-proof Compression.
7. Complete with Built-in Magneto.
8. More than Rated Power.

3 and 6 H. P.

Use Kerosene

—Also Distillate
—Coal Oil
—Tops or Gasoline.

The 1½ H. P. uses gasoline only.

The Service You Get From Your Local Dealer

Your local dealer has just the type "Z" for your needs in stock—waiting for you. Buy from him. He is prepared to give prompt delivery and personal service.

FAIRBANKS, MORSE & CO.

Chicago - *Manufacturers*

Mammoth Tractor Show

OVER $1,000,000 worth of exhibits, demonstrations in plowing and other field work by fifty tractors, and grounds covering more than 60 acres are some of the features announced for the great tractor and farm machinery demonstration and exhibition, which will be held at Los Angeles, September 17 to 21. The field is located on Whittier boulevard, one-half mile east of the city limits.

If the attendance reaches the advance estimate of 150,000 (and the Traction Engine and Implement Dealers' Association of Southern California, which is staging the big show, is making plans for that number), the affair will surpass any similar event of its kind ever held, including the recent national demonstration at Salina, Kansas. It is quite certain that in point of number and variety of exhibitors, the Los Angeles demonstration will establish a new record. The list of participants includes not only the tractor distributors, but truck, tire and automobile dealers, as well as accessory and farm implement manufacturers, oil distributors and electrical concerns.

Provisions have been made for a number of amusement features and the program will be such as to attract not only farmers and others interested in tractors and machinery, but their families. The attendance of women and children is expected to be large and every provision will be made for their comfort and entertainment.

There will be no admission charge and free parking space for automobiles will be provided. No expense or effort will be spared, according to R. M. O'Neill, manager of the demonstration, to make it the greatest event of its kind ever held anywhere.

Indications are that farmers not only from all over the State, but from other western States, are planning to be present. Certain it is that the educational opportunity afforded by a competitive demonstration of all of the tractors sold in Southern California is an exceptional one. No doubt many a prospective tractor buyer will be able to decide at the show which machine is best suited to his particular conditions

Flowers and Vegetables

"I have quite a bed of chrysanthemums that are done blooming. Would like to plant onions and radishes for winter use in the bed, but want to keep some of the best of the plants for next year. What had I best do with them?"

You may cut off the old tops and any dry bloom from the chrysanthemums and dig and replant the roots in any out-of-the-way corner under a tree, shrub or in some unused part of the garden. Water well after replanting and keep well tagged so you will know which is which when you want to put in cuttings next spring. As you can get several cuttings from one plant you will not want to save all you have in your bed.

For the Farm Woman

Edited by Ruth Roberts

Home Canning

"To labor is to pray."

BY THE canning of home products, factory goods will be released for the boys in the camps and others who really need and are dependent upon them. Wastefulness, bad at any time, today is a crime against society.

Anyone who cares to demonstrate the statement that patent laxatives are not needed when one has a proper diet need only find out the right amount of fruit and vegetables needed for their individual case and eat these daily. An unbalanced diet means slow, stupid, headachy, ill-tempered people.

Why should the farmer's wife buy extra food and let the apples rot under the trees a half mile up the road? Apples—big red ones—outside the fence and free for the picking up; apples that would make many a city household cry for envy, lie softly and slowly decaying in the sun.

Substitute some other fruit or vegetable for apples, if they don't apply, and the foregoing will probably fit your case.

It is so easy to neglect that which to us is so common, and then, of course, time is valuable around the ranch house and there are many things to do; but if your canning is done, surely there is some one who can use all that is going to waste; some one you know or don't know, so look about you.

Have you tried the cold pack method? By this method it is possible for anyone to can at home, in one process, any food product and know that it will keep.

Of course, we wash the products clean and, where necessary, trim them—pare the apples, string the beans, silk the corn, hull the berries; in short, prepare them as may be necessary. (In the case of tomatoes, remove the skin and the stem end after scalding.)

Scald—Scald means to immerse in boiling water. Blanching is a longer process. Both loosen the skin. Blanching will also reduce the bulk and drive out objectionable acids. Lift tomatoes out of the hot water and plunge them into cold water. Do not let the product stand in cold water.

After peeling the tomatoes, pack and press them in hot jars, but do not crush them. Add hot water for vegetables or syrup for fruits, but in the case of tomatoes very little water, if any, is needed, as a large part of the tomato is liquid. Add a teaspoonful of salt. Jars do not need to be full to keep, as in the hot pack method.

Do not seal jars tight. In using jars with a patent wire snap, leave the clamp up.

Have ready on the stove the cooker, which may be a wash boiler, a water pail, lard pail or coffee can. Whatever it is, it must be three inches deeper than the tallest jar.

Jars must not be set directly on the bottom of the cooker, or the contents will become overheated, and in overheating there is danger of the jars breaking. To prevent this danger, jar-holders or trays are made of

Catch Him

Every Jar Must Do Its Duty.

lath, wire, tin or perforated board. The tray should rest on the slats, so that it will be raised an inch above the bottom of the cooker.

Have the false bottom slatted or open, so that the water will circulate around the jars. Have the water come

The Sandwich Girl

If You Follow Her Advice You Won't Be Sorry.

an inch above the tops of the jars. All boiling must be timed.

Do not begin to count time until the water is boiling hard and keep it at a lively boil until the time is up.

Do not let the jars cool in the water when the cooking is finished.

I have been asked by my readers if any preservative is needed in cooking fruit juices. Any food product, fruits, vegetables, meats, fruit juices, greens, soup, fish, game or foul can be canned by the cold pack method.

Cook by the time-table printed in the August number of Orchard and Farm on page 4.

After you have removed the canned product from the cooker, set the jars on their heads for twelve hours in order to detect any leaks. Of course, the jars must have the covers screwed or fastened firmly before this is done. If any jar is found to leak, remove the cap, screw on again lightly and reboil.

Boiling temperature varies at different heights, and in high altitudes the time for cooking in a hot water bath outfit must be increased as follows:

From 500 to 1500 feet, use time-table as given; 1500 to 3000 feet, add 10 per cent; 3000 to 4000 feet, add 20 per cent; 4000 to 7000 feet, add 40 per cent.

Get Busy on the Old Pear Tree

Now's the Time to Get Ready for Winter by Stocking Your Pantry Shelves With Fruits and Vegetables Canned and Dried at Home.

Rhubarb should always be canned in glass. Syrups are used in canning most fruits. Time is saved by using hot water in making syrups, as the sugar dissolves more readily

In making the syrups given here, stir the sugar into the water and let the syrup come to a bubbly boil. Boiling is not necessary; it only makes a thicker syrup. Do not stir after the sugar is thoroughly dissolved.

Thin Syrup—Two cupfuls of sugar to one cupful of water. Use for peaches, apples and fruits that are not delicate in texture or color.

Medium Syrup—Equal parts of sugar and water. Use for blackberries, currants, blueberries, huckleberries, black raspberries, cherries, plums, etc. Three cupfuls of sugar to two of water makes a medium thick syrup. Use this for strawberries, red raspberries and especially sour fruits, such as gooseberries and cranberries.

Select corn to can carefully, as too old corn is not good; if underripe, it is tasteless. Be careful not to use too much salt in corn, as it has a tendency to give it a sour taste. A small spoonful of a mixture of two-thirds sugar and one-third salt is good. Corn looks better if the can is filled with water, but it tastes better if only a small amount is used.

When opening canned corn on the cob, heat by steaming, as it grows soggy if put in water.

Sweet potatoes keep very well if

Don't Be a Nut—Be a Squirrel

Nature Can Teach You a Lot About Conservation.

stored in a warm, dry place and spread out so that they do not touch.

The canning season need no longer be dreaded, as a large amount of canning may be accomplished in an hour or two and very few hard or hot steamy days need be spent at the great patriotic duty of canning all surplus food if the cold pack method is used.

Unless home canners have a certain market for their goods, they are advised by the Food Administration not to attempt commercial canning. There are many difficulties in the way of disposing of small amounts of canned goods.

Home canned and preserved goods cannot be purchased or accepted as gifts for the army or navy. No governmental department is permitted to accept any article without paying for it. Supplies of this kind must be purchased in reasonably large units and must be uniform both as to ingredients and containers in order to simplify inspection and packing and guarantee the keeping quality of the goods.

However, every additional million jars or cans that are filled by housewives for home use will release an identical quantity of commercially canned goods for export. There will also be saved the labor, space in freight cars and cost of transportation that would mount up if factory-preserved foods had to be sent broadcast throughout the country instead of being shipped in large blocks to cantonments or abroad.

Dry, can and preserve everything possible and store in every available container. If you have a surplus of produce or can put up a surplus of fruits and vegetables, share your surplus with others. Such sharing of foodstuffs is not only neighborly and human, but is true conservation, as it helps in the solution of the food and transportation problem. Housewives might well adopt and adapt the scout slogan to "Feed a Soldier's Family."

Canning clubs are great fun. It is so nice to work with your neighbors if they are congenial, and congeniality rests with ourselves—unless we live in New England, and all rules fail there. But out West nearly everybody wants to be friendly, so let's go half-way.

I always long to take my ironing to some friend's, where I can iron and chat and reach the end of those countless little moist bundles quickly. Ironing is such a gloomy thing to me. How about you people?

Well, we can get together on the canning, anyway. If we are unable to take our work next door or to the church kitchen, remember the housewives all over the whole United States are canning, preserving and pickling with you this busy autumn.

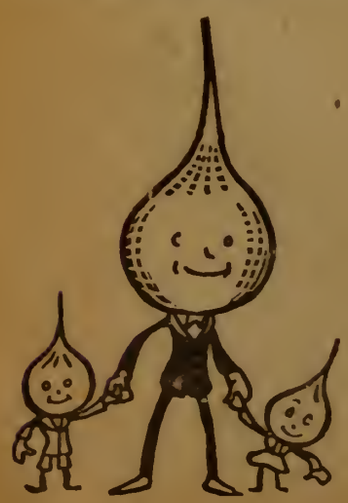
So what you can't eat, can, and what you can can, can; or, as the Englishman said, when attempting to retell the story, "What you can can tin."

Much food is in the village of the soil; but there is that which is destroyed for the want of judgment.

RUTH ROBERTS

Mr. Onion and His Family

Think of the Uses to Which They Can Be Put If You Give Them a Chance by Canning and Drying.



Use Good Rubbers for Canning

THE cold pack method of canning has received the approval of housewives all over the country. Wherever the method has been successful, the trouble has been in the failure to follow directions, or in imperfect jars, tops or rubbers. Probably one of the most serious troubles which housewives have had in canning during the last year or two has been due to inferior rubber rings.

It is very important in any method of canning in glass that new, good quality rubber rings be selected. Rings should be tested for elasticity by pulling. They should not break easily and should return to shape. When doubled between the fingers the rubber should not crack or show little holes. It should fit closely on the jar. Do not select rings by color, but by test. Do not use the same rubbers twice. It is cheaper to buy new rubbers than to lose a jar of fruit or vegetables.

ORCHARD and FARM

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How Baby Should Grow

WEIGHT—The average weight of a baby at birth is 7 pounds. He loses a few ounces during the first few days. After that he should gain on an average six ounces a week. At the end of six months he should double his weight at birth. After six months he gains more slowly, from 3 to 4 ounces per week. At a year he should weigh three times as much as he did at birth.

Measurements—At birth the average height of a baby is 19 inches.

The average circumference of a baby's head at birth is 14½ in., at 1 month is 15 in. At birth and for the first month, the circumference of the chest is between 13 and 13½ inches; the circumference of the abdomen is the same. At 12 months the head, chest and abdomen measure about the same, 18½ inches.

How Baby Notices—A baby born with good hearing and sight starts at sounds and blinks at bright light. At 3 months he discovers his hands and plays with them, smiles when spoken to pleasantly or chucked under the chin. At 4 months he holds his head erect. At 6 months he should be able to sit alone with pillow at his back, know his mother, show suspicion of strangers and learn how to hold things in his hands.

How Baby Teeths—His first tooth, usually one of the lower middle teeth, appears at about 6 months. Bottle-fed babies do not teeth as soon as breast-fed babies.

The Fontanelle or soft opening in the top of baby's head or skull closes gradually. It is usually closed at 18 months.

How Baby Learns to Walk—At 8 or 9 months he sits alone on the floor and may try to creep. At 9 or 10 months he discovers feet are made to stand upon, and may try to pull himself up by his hands. He must not be urged. At one year he usually stands without support and soon begins to walk with support. Walking may be delayed by heavy, bungling diapers. Strength of limb is encouraged by a daily play hour, starting at one month. Stripped of all clothing except binder and shirt, he is laid on a soft quilt in crib or bed, in a warm room, and allowed to kick for thirty minutes.

An Exception

Remember," my son, said the father, "that politeness costs nothing."

"Oh, I don't know," returned his hopeful "Did you ever try putting 'Very respectfully yours' at the end of a telegram?"

Another View

"It seems foolish to mortgage a home to buy an automobile."

"Not if you've got an automobile and don't need a home"

PACIFIC REDWOOD TANKS

withstand longer the effect of sun, rain and fire, give longer service, and cost less to install than any other.

For the money they cost they give more comfort, and more valuable service, than a like amount can buy in any other farm improvement.

A PACIFIC Redwood Tank costs a third less to install, and lasts twice as long as any other. We have constructed PACIFIC Redwood Tanks on three continents, been at it thirty years, thousands of farms are better places to live because of these permanent installations.

We maintain a staff of Engineers, whose business it is to advise on farm problems.

Write to us concerning your needs. Our engineers will suggest plans for your water system.

Pacific Tank and Pipe Co.
Address nearest office.

Gentlemen:
Please send promptly your catalogue of Water Tanks.

I need a tank to hold..... gallons.

It should be mounted on a tower .....feet high.

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314 Market Street, San Francisco
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Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker write E. J. Reefer, poultry expert, 3746 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his free poultry book that tells the experience of a man who has made a fortune out of poultry. —Advertisement.

Write for Our Prices On Any Nursery Stock In Which You May Be Interested

The World Needs California's Fruits

Uncle Sam says, "Produce," and it's up to the fruit growers of California to make every acre of land produce to the limit. Cull out your poor trees and replant with Elmer Bros.' stock—the kind that produces. If you've bare land available—put it into trees this year. You'll help meet the world's needs—and you'll make big profits, besides.

Elmer Bros. Nursery

The Nursery That Helped to Make Santa Clara Valley Famous,

78 S. Market St., SAN JOSE, CAL.

The One Big Tractor Demonstration Begins September 17

Over 150,000 Visitors Expected

The Third Annual Tractor Demonstration will be the biggest and most elaborate exhibition of Farm Machinery and Tractors ever held in America. Over one million dollars' worth of Farm Machinery, Implements and Accessories will be on display in tents covering over sixty acres. Fifty or more sizes and types of tractors will be in operation, providing the best possible opportunity to inspect and judge tractor work on the farm.

The Dates—September 17, 18, 19, 20, 21

The Place—Whittier Boulevard

Half-mile East of Los Angeles City Limits.

DON'T MISS IT! NO ADMISSION.
FREE AUTO PARKING GROUNDS

TRACTION ENGINE AND IMPLEMENT DEALERS' ASSOCIATION OF SOUTHERN CALIFORNIA

220 H. W. HELLMAN BLDG., LOS ANGELES

Good Grange Subjects

HERE are a few subjects that might be discussed to good advantage by our Granges:

What is a fair basis for reckoning farm depreciation?

Is the number of farmers increasing or decreasing who actually know whether their farms are paying?

The season's experience with farm help and what it has taught us for next season.

Do you actually know whether your cows and your hens are paying you? Have you ever stopped to reckon up what they cost you? If so, what is a fair return for your cows per head? For your hens?

Would it pay for more farmers to produce certified milk?

Mistakes I made on my farm last year. What new thing I propose to try next year.

How would you improve your home on $5? On $25? On $100?

What can this Grange do for the good of our country and mankind?

If you were going to purchase a farm, what points would you give first consideration?

What legislation do the farmers of this community need the most?

If the farmers are not adequately represented in our legislatures, whose fault is it?

What, besides dollars and cents, should be counted in the year's profits on the farm?

Production, distribution and conservation.

Doctors, Read This!

AN opportunity is offered today to the doctors of California and Arizona to enroll in the Naval Reserve of the United States naval forces.

This announcement was authorized by Dr. Morton W. Baker, medical aide to the Commandant of the Twelfth Naval District, from headquarters at San Francisco. Members of the medical profession are urged to respond to this call for patriotic service that they owe their country and thus place themselves on record offering their professional services in this cause for humanity.

Applicants upon being enrolled will receive the commission of Assistant Surgeon with rank of lieutenant, J. G. The Naval Reserve Medical Service affords a doctor a varied and valuable experience and splendid advancement if the Assistant Surgeon is found proficient. His duties may be at a training station, a naval hospital or on board ship or it may be an assignment to a foreign station. After enrollment the Assistant Surgeon is requested to send full information to the Bureau of Medicine and Surgery as to his specialty

In addition to a liberal allowance which is made by the Naval Department for quarters, fuel and light while ashore, an assistant surgeon's commission carries a salary of $166.66 a month with a uniform gratuity of $150 which is allowed by the United States Government.

Benefits of the Single Tax

(Continued from Page 5.)

by cultivating it, except the barest living for yourselves."

It is worse even than this. In most cases the land owners of California have set the rental or the purchase price so high that not even the barest living wages can be retained by those who go upon it. In many instances, like the vast Miller and Lux holdings, not a foot of the idle holdings are for sale at any price. Even the Government shipyards are hampered, restricted, driven from one site to another because the owners of adjacent lands refused to sell—"owners" of idle, unused, vacant lands, say even to the Federal Government, "Get off! This is our land. We will not use it, nor let anyone else use it."

They say that to the Government in its hour of peril, when its young men are dying on the plains of France to make the world safe for democracy

That is their patriotism — their Prussianism—their unwillingness to forego a tithe of their speculative profit even to help the Nation in the hour of its greatest need.

The Junkers Own Prussian Land

Indeed it is true, "by their fruits ye shall know them." Mr. Kern could have selected no text more pleasing to the Single Tax proponents. He goes to Europe—and admits that the unlimited ownership of land is there the basis of aristocracy. I would add that aristocracy is the basis of autocracy; that the whole Prussian system of military domination rests upon the ownership of all the land of Prussia by the junker caste—it rests upon the privilege of one man to "own" more land than he can use.

Mr. Kern says there are many different kinds of land holding, but does not specify. Only technically is that true. The fee simple title is the same the world over, except that in certain times and places certain duties to the King or the State have been imposed upon its holders. The essence and meaning of the fee simple is that a person or corporation may "own" land which he or it has no other use for except to keep others who would use it from going on it.

And what is its fruit?

Before the war, slums in every center of population, a few enormous fortunes, millions of men out of work, constant labor riots and strikes, rackrenting and mortgage foreclosing on every hand, increasing suicide, prostitution, child labor and infant mortality, everywhere the economic domination of the many by the few—the wealth of the Nation in the hands of less than three ner cent of the hundred million people in the United States—and then the great explosion, the world war against domination and autocracy!

California a Bad Example

What is its fruit in California?

Twenty million idle acres, an actual decrease of land using, an alarming increase of farm tenantry. In 1890 there were 12,300,000 acres under cultivation in California; in 1910 there were only 11,300,000 acres in use. In 1903 we raised 21,000,000 bushels of wheat; in 1913 only 4,200,000.

The fruit of the fee simple, in California, is the upbuilding of a small land owning class, the depopulation of its farming acres, the over-crowding of its cities, the rapid impoverishment of four-fifths of the population, and almost a cessation of the once promising flow of settlers from the Eastern States. The report of the State Commission on Land Colonization says:

"Comparatively few settlers are coming here, and many who came in recent years have left. Costly advertising and still more costly personal solicitations have not served to attract colonists."

Why? Because the unused land is held so high that settlers cannot pay the price from crops grown upon it. "We have not found a single settler," says the State Commission's report, "who bringing with him only limited capital, has been able to pay for his land in the time agreed upon in his contract."

That is the fruit of the fee simple, the "right" of unlimited ownership of all the land one can acquire regardless of whether or not he uses it.

Mr. Kern's Wrong Viewpoint

Mr. Kern writes of conditions in California from the roseate view of its few landlords who enjoy large incomes, not from selling potatoes for two dollars instead of one dollar, but from demanding and receiving the lion's share of every bushel of potatoes marketed. Single Taxers do not argue that the farmer has not earned all he receives for his potatoes under any honest and free conditions. Their argument, and their truth, is that the ground rent collector and the absorber of land value increase, in their capacity as such, have earned none of their vast harvesting. They give to society nothing for the enormous tolls they collect. Their incomes are not earned, but morally filched from the producers.

Mr. Kern asks, "If men could have earned only bare wages and interest on their capital by going on the land, would as many have gone there?" The truth is that very, very few men who have gone on California land have made even that much. The State reports will prove that, and if they are unreliable, look at our 20,000,000 idle, fertile, "sunkissed" acres Men who go upon the land rarely get so much as living and interest—90 per cent of them fail (that is Bradstreet and Dun). The men who reap the land value increase are the men who do not go upon the land and cultivate it. They are the men who live in city or suburban palaces, have private yachts, and a retinue of servants.

Kind of Men Opposed to the Tax

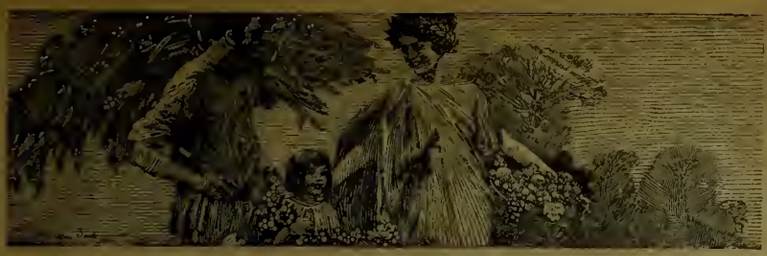
These are the men who resist the more equitable distribution of wealth that Single Tax promises—these, the land owners of California, will not be financially bettered by Single Tax Much of their enormous incomes will be denied them, will go into the public treasury—but they will have enough left, "all they can really enjoy, and a much better state of society in which to enjoy it."

Mr. Kern's pen bleeds for the working farmer, for the people who use their land. It would be a shame to take from them their little increase of land value But he does not explain how the increase of land value can enrich those who use their land Of course it cannot enrich them, for they cannot reach it without selling their land, without turning from cultivation to speculation—and that is just what a few of our "successful farmers" have done. They have left production and become "successful" by speculating. That is why in twenty years the cultivated acres of California decreased one million!

Missouri Farmers Misled

Mr. Kern seems to approve the course of certain Missouri farmers who "stoned and rotton egged the Single Tax orators" a dozen years or so ago. The farmers didn't understand. They were misled by the falsehoods of the land barons, who told them that Single Tax would throw the tax burden on land users instead of upon land monopolizers They have learned much since then There is another Single Tax proposal there this year. There will be no stones and rotten eggs. But—I am wondering—is that the kind of "democracy" the president of the Anti-Single Tax Association has in mind when he claims that its foundation and cornerstone is the fee simple

(Continued on Next Page)



California Liberty Fair

Great Show in Exposition Park, Los Angeles

A WONDERFUL war exhibit will be sent by the Government to the great California Liberty Fair to be held in Exposition Park, Los Angeles, October 12th to 26th.

This places the stamp of the administration's approval upon an exposition that will be unique in the history of the Golden State. The war exhibit will occupy an entire building and will be worth traveling many miles to see.

R. W. Pridham, president of the California Liberty Fair Association, has ordered everything else set aside in the effort to secure the entries which even now are pouring in. It is possible to secure the data from Secretary F. B. Davison at the headquarters recently opened in Central Park. The list of exhibits, number of buildings, the classes of entries and any other information can all be obtained for the asking.

While thousands of square feet of exhibit space is being set aside at Exposition Park, President Pridham is anxious to know as soon as possible just how many intend to take part. The prizes have been decided upon largely in every department of the fair where exhibits are to be made.

Those who are interested in cattle, sheep and hogs are to be given an opportunity to see a wondrous array of the finest in every line that is known to stock breeders. Already preparations are being made by stockmen, well known cattle men, hog raisers and sheep producers to bring to this State the finest, and those who win honors in any of the classes at this fair will have the keenest of competition.

The exhibit of hogs promises to exceed anything ever attempted at any fair.

It is expected that this fair will give a special impetus to hog raising in this State.

The horse show is to be made a wonderful affair. The entries already promised insure its success. It will be housed in a handsome structure and the seating capacity of the grandstands will be such that at least 6000 people can comfortably see the show during the three days that it will be held. There also will be horse racing at the fair, though this will not be held in conection with the horse show, where gaited horses, the hunters, the truck horses and the famous stallions are to be on dress parade

Of course you are going to the Liberty Fair. Thousands of the Orchard and Farm family will be there and Orchard and Farm will be there to greet them. Make a memorandum of the date of the opening—October 12th.

Benefits of Single Tax

(Continued from Page 30)

"right" to keep starving people off idle, unused land?

Real Object of Single Tax

The farmers of California, I am sure, have a higher ideal of democracy, and will not be misled by Mr. Kern's ingenious misunderstanding of the purpose of Single Tax. It comes not to draw men apart, but to unite them — economically and actually. This it will do, not by arraying class against class, but by abrogating privilege and thus destroying class, making it the economic interest of all men to be producers, distributers of and sharers in, the common wealth; gradually, peacefully, harmoniously, orderly to obliterate the class whose sole interest now is to charge others toll for the bare right of going upon unused land.

When the farmers are told that the tax burden will fall on them under Single Tax, they have only to remember that the tax is on the value of the land—and that the assessed value of all the fifty-five agricultural counties of California is not as much by several million dollars as the assessed land values of Los Angeles, San Francisco and Alameda Counties. The Single Tax will fall on value, not on area. The Single Tax, by removing the tax burden from land users and making it unprofitable to hold land and natural resources idle, will put California's slacker acres, idle mines and oil wells behind the Boys at the Front!

Dr. McCollum's discovery, coming at a time when the dairy industry was facing a crisis, has dealt butter substitutes a crushing blow and at the same time laid bare the folly of a [illegible] consumption of milk.

A Good Farming Book

A VALUABLE book called "Injurious Insects and Useful Birds," by F. L. Washburn, has just been published by Lippincott's. It contains four colored plates and 414 other illustrations.

This work is the result of twenty-one years of experience in economic entomology. It is a book for the gardener, the orchardist, the nurseryman, the housekeeper and, above all, for the farmer. The author's national reputation led to his selection by the editor of the Lippincott Farm Manuals to handle this subject. Professor Washburn is an enthusiast in this field and his work is sure to become standard.

The insect pests affecting the apple, pear and quince, plum, peach and cherry; those affecting berries and grapes; the enemies of citrus fruits; insects affecting field crops and pasturage; truck crops and the vegetable garden; enemies of greenhouse and house plants, and of the flower garden; insects affecting shade trees, and those attacking man and the household; insects and insect-like animals attacking stock and poultry; mill and elevator insects; these are all fully described and illustrated, their habits given and the method of control applicable to each recorded.

There are valuable chapters on modern methods in farming calculated to lessen insect and rodent injuries; insecticides and spraying; fumigation; the structure and life history of various insects; our insect friends, and the relation of birds to agriculture. The four-footed pests of the farm, such as hares and rabbits, gophers, ground squirrels, moles, field mice, rats, ground hogs, prairie dogs, raccoon, weasel, fox, etc., are given careful attention, and the measures most successful in combating their ravages are described.

Cut Your Firewood with a Disston Buck Saw

It's the fine quality of Disston Cross Cut and Buck Saw blades that makes them eat up the timber and wood pile. They cut fast, sure and with the least possible effort. All Disston Saws are made from steel especially made for the purpose, in our own plant. The Disston Trade Mark means the same on a Cross Cut or Buck Saw as it does on a hand saw—and three out of every four carpenters choose Disston Hand Saws—famous for value for 78 years.

Disston Saws and Tools are sold by progressive hardware dealers the world over.

Send for our Booklet, "Disston Saws and Tools for the Farm."

HENRY DISSTON & SON, INC.
PHILADELPHIA, U. S. A.
Canadian Works: Toronto, Canada

DISSTON SAWS AND TOOLS

The Speedy Stitcher

Sews a Lock-Stitch Like a Machine.

Its simplicity makes it a thoroughly practical tool for any and all kinds of repair work, even in the hands of the most unskilled. With this Awl you can mend Harness, Shoes, Tents, Awnings and Pulley Belts, Carpets, Saddles, Suitcases or any heavy material.

You can use any sewing machine needle or any kind of thread or wax end in the awl.

OUR OFER—One of the Stitchers sent postpaid to any address free with a twelve months' subscription to Orchard and Farm at 50c.

Sectional view, showing bobbin and set of needles inside the handle.

The Home Flower Garden

By Mrs. E. E. Paquette
1118 Polli Street, Ventura, Cal.

IF THE Orchard and Farm readers visit my place this month, it will have to be in the garden. This is one of the busiest months in the year in my garden. I always think of this as the second spring.

But I will be glad to have you all come to the garden with me and we will talk things over. First, how do you think you will like my gardening suit? I found a pair of my husband's overalls in the garage and borrowed them. Any kind of an old middy or blouse with long sleeves will do to go with it. It is not quite as effective in looks as the Land Army uniform, but it is much better than skirts to work in.

I want you to see my seed boxes. I have just planted seeds of stock for winter blooming, and when I transplant them I will border the walk from the garage to the house with white ones. They will furnish cut flowers all winter and will also be fragrant when we come home in the evening, and I love to walk in a path bordered with white at night.

I have just sown in seed boxes pansy, columbine, calendula, forget-me-not, candytufte, and some mineraria and Canterbury bells that I did not get planted in August.

See that long row by the fence spaded? It is ready for the fall planting of sweet peas. I have had some rotted manure in the soil for a month and have turned it twice, each time leaving the soil just as I turned it up with the spade. It airs out and is in better condition if left this way than if it is raked down smooth. I will also give the bulb beds the same treatment. Have had a good load of well rotted manure hauled and spread on the beds and I will turn the soil several times before I plant the bulbs.

About My Bulbs

I will make a small planting of Roman hyacinths and have the bloom for Christmas. One can also plant fresia, anemone, ranunculus, amaryllis and paper-white narcissis. I would not advise planting any but the very earliest of narcissis, though.

I love the callas in the winter, so I am making room for a long row of them on the side of the path. I will have to be very careful that none of the manure that I have spread on the bed does not get in the calla row, for manure rots calla bulbs.

This is the best month for dividing and transplanting iris, and they are another flower that does not like manure. So I am very careful that none reaches the roots. I do hope every one of you will have an iris bed.

All the gladiolus are through blooming now and the bulbs should be taken up and stored. I am going to plant a small row of the light varieties. I find they bloom nicely in the winter and the blooms are a change from cut flowers. I am plant- a part of my baby glads this h. It is early for most of them, few now will make the bloom- od earlier)—and they are al- me. You must be to is year.

ing Table

er of the lath table, and this composite of hird rotted den soil. em and lants and for potting up cycleman and hyacinths for winter bloom.

The beds that had summer annuals in them should be cleaned out and replanted with the young plants of snapdragons, centaura, gallardia, foxglove, Canterbury bells, sweet Williams and, in fact, all the winter-blooming annuals and perrenials for next year's bloom. Do not leave the small plants in the seed boxes too long; if the beds are not ready for them, pot them up in small pots and they will make hardier, stockier plants.

Pruning and Bedding Plants

I have not finished my summer pruning yet, so I must hurry up and get that done this month. By all means, see to your Cherokees. Now, see how I have treated this one. It is white, and I want a seat built here, with a cover over it, and I will train this Cherokee over it So I have trimmed out all the old wood and all the small, scratchy growth, and have saved only those five long, new shoots, and I have tied them up to this stake until the seat is built and the permanent post ready to train them on. This is a young plant and five shoots are enough. I will not allow another inch to be clipped until blooming time, for the growth that it makes now will furnish the wood for blooming next spring.

All-summer blooming shrubs that have not been pruned should be looked after at once. Cut out the old wood and leave the new growth for next year's bloom.

My Pool and Fish

Mrs. H. of Santa Cruz, you asked what was good for planting around a pool. I want to show you my pool. I have just replanted around it. I left the side next to the path with only ferns next to the edge of the pool, and on this side is the seat, for one is always wanting to sit still and watch the fish; and back of the seat is the snowball bush, with a tall clump of the striped Brazilian flax at each end of the seat. On the other sides I have the small fancy grass and ferns, and back of that the Brazilian flax, a papyrus, dwarf bamboo and the tall striped grass. Arundo donax varigata. All kinds of fancy grasses are pretty around a pool. For planting in the water, I have the parrot's feather, water hyacinth, water weed and umbrella plant. They are all very easily grown in water.

See how my baby fish are growing. I feed them nothing at all. They live off the parrot's feather. The umbrella plant is one of the cheapest and very best plants for the water. It furnishes oxygen for the fish and does not need to be planted in soil. It will develop water roots if just placed in a pot and held upright with pebbles.

A Good Old Rose

"I would like to have one of the old-fashioned cabbage type of roses in my garden, but so many that I have seen here in California have such poor foliage and develop such a dirty-bluish cast. Which is best?"

Magna Charta is good, while not absolutely free from mildew, still its foliage is not bad and the bloom is good and clean. It grows freely, blooms freely, has a good fragrance and is altogether a perfect gentleman of a rose and will not disgrace the finest rose garden.

Pretty Costumes

Selected by Ruth Roberts.

These costumes are all carefully chosen with a view to their adaptability to the needs of the home dressmaker. None is elaborate or complex and all can easily be made from the patterns provided by this department To get any of the patterns send ten cents in silver or stamps to Pattern Department, Orchard and Farm, Examiner Building, Los Angeles.

2577—Ladies' Dress.
Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 5½ yards of 36-inch material. The skirt measures about 2½ yards at the foot. Price, 10 cents.

2204—Girls' Dress
Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 8 will require 3½ yards of 44-inch material. Price, 10 cents.

2184-2187—A Charming Three-Piece Suit
Coat-Waist 2184 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires 2⅝ yards of 36-inch material, for the waist, and 3⅜ yards for the blouse, for a 36-inch size. Skirt 2187 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure, and requires 3⅜ yards of 36-inch material for a 24-inch size. The skirt measures about 2½ yards at the foot. Two separate patterns, 10 cents for each pattern.

2566—Boys' Blouse Suit
Cut in 5 sizes: 6, 8, 10, 12 and 14 years. Size 12 requires 2 yards for the blouse and 1½ yards for the trousers, of 36-inch material. Price, 10 cents.

2042—Ladies' Apron
Cut in 4 sizes. Small, medium, large and extra large. It requires 5½ yards of 36-inch material for a medium size. Price, 10 cents.

2567—Girls' Dress
Cut in 4 sizes: 10, 12, 14 and 16 years. Size 12 will require 3 yards of 36-inch material for the foundation. The over-blouse will require 2¼ yards. Price, 10 cents.

2569—Ladies' House Dress
Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires for a 38-inch size, 6⅛ yards of 36-inch material The dress measures about 2½ yards at the foot. Price, 10 cents.

2573—Girls' Dress
Cut in 4 sizes: 4, 6, 8 and 10 years. Size 8 requires 3¾ yards of 36-inch material Price, 10 cents.

2547—Girls' Drawers
Cut in 5 sizes: 4, 6, 8, 10 and 12 years Size 10 will require 1¼ yards of 36-inch material, for either style Price, 10 cents

Catalogue Notice

Send 10 cents in silver or stamps for our up-to-date Fall and Winter 1918-1919 catalogue, containing 550 designs of ladies' misses' and children's patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various, simple stitches) all valuable hints to the home dressmaker

Use Coupon in Ordering Patterns

Herewith find ..... cents for which send me the following patterns.

Pattern No..... Size .....

Pattern No..... Size .....

Pattern No..... Size.....

Be sure to give number and size. Send orders for patterns to ORCHARD AND FARM, Examiner Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below.

Cushman
Light Weight Motors

for

Bean Threshers
Ensilage Cutters
Corn and Grain Binders
Shellers and Hay Presses
Combined Harvesters, Potato Diggers, Rice Binders, and all other farm work.

4 to 20 H. P. Weigh only about one-fourth as much as ordinary engines, yet run even more steadily and quietly.

Moving parts run in oil, absolutely enclosed; free from dust.

Equipped with Throttling Governor, Carburetor and Friction Clutch Pulley. Cooled by circulating water system, driven by engine pump.

Thousands are in use in this state, doing more different kinds of work than any other type of engine. Sold by California Representatives and distributed from stock in California Warehouses. Write for Book on Light Weight Engines.

CUSHMAN MOTOR WORKS
880 N. 21st St. LINCOLN, NEBR.

55 Valuable Formulas, Tricks, Illusions and Household Hints in our interesting magazine for two issues. SENT COMPLETE FOR **10c**
NATIONAL AGENCY
Watsonville, Cal.

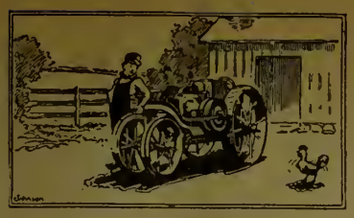
Steady Power

RED CROWN GASOLINE

The Gasoline of Quality

A continuous, uniform chain of boiling points makes "Red Crown" *dependable.* No "mixture" can give the same satisfactory results. Look for the Red Crown sign before you fill.

STANDARD OIL COMPANY
(California)



Tractor Repair Bills

ANY figures on the expense of keeping a tractor in repair are of necessity very general. The amount of repairs required depends upon a great many factors, the most influential being the proficiency of the operator and the care he gives the outfit, both when in use and when idle.

The conditions under which the outfit is used, that is, whether on rough ground, in dusty fields, etc, the load it is required to pull, and, of course, the quality of the machine itself, all have an effect on the repair bills.

Many tractors are kept in repair by the manufacturer during the first year's service, excepting for such items as are caused by some fault of the operator. It is not until the second year, therefore, that the owner bears the full expense.

Of 140 tractor owners in Illinois who had used their outfits one season or less (average age nine months), forty-eight reported that they had spent nothing for repairs. The others had repair bills varying from a few cents to a hundred dollars or more, the average being $22, making the average repairs for the entire group about $15.

Comparatively few machines go through their second season without repair charges. The average repairs for 158 Illinois outfits between the ages of thirteen and twenty-four months (average age twenty months) was $39. For thirty-four machines between the ages of twenty-five and thirty-six months (average age thirty-two months), the average repairs amounted to $79.

The statement is frequently made that a tractor should last indefinitely with proper repairs, since all parts are renewable and the substitution of new parts for worn ones will make the outfit as good as new.

The same arguments are often advanced with regard to automobiles, but everyone knows that it doesn't hold true in that case, nor does it with the tractor.

In both cases, as with practically all other machines, there comes a time when so many parts have become worn and need replacing that the cost of repairs is so great as to make it unwise to spend such an amount on an old machine, it being more profitable to discard it and buy a new one.

Profits From Scrap Iron

SOMEWHERE on almost every farm there is a collection of discarded machinery and odd pieces of scrap iron. This scrap can contribute to the winning of the war by being converted into war material or new farm machinery All this discarded machinery should be melted and incorporated in new castings. The aggregate scrap on American farms is enormous. The gathering up of it will help supply needed material, improve the appearance of the farms, and yield profitable returns.

After harvest, there is usually a lull in the rush of the farm work. This is the time for gathering up the scrap. Worn or out-of-date machinery is constantly being replaced with new labor-saving equipment. These old tools merely clutter the premises. They have done their work. Now is the time to cash in on the salvage, while prices are high. By all means clean up the scrap.

Not our bit to the call, but our best and our all.

Fewer stockings to darn—fewer new pairs to buy

Durable-DURHAM Hosiery is built for wear and economy—as well as for good looks.

Honest materials, combined with expert, conscientious workmanship, keep it out of the darning-basket, save you time and trouble and cut down the family stocking bill.

DURABLE DURHAM HOSIERY

FOR MEN, WOMEN AND CHILDREN
Made Strongest Where the Wear is Hardest

The yarn is of extra good quality, the knitting and finishing done with the utmost care. Every pair is *strongly* reinforced at points of hardest wear. Legs are full length; tops are wide and elastic; sizes are correctly marked; colors will not fade; soles and toes are smooth, seamless and even.

Ask your dealer to show you the different styles of Durable-DURHAM Hosiery. Look for the Durable-DURHAM ticket attached to each pair.

Write to Sales Dept., 88 Leonard Street, New York City, for free catalog showing all styles.

DURHAM HOSIERY MILLS, Durham, N. C.

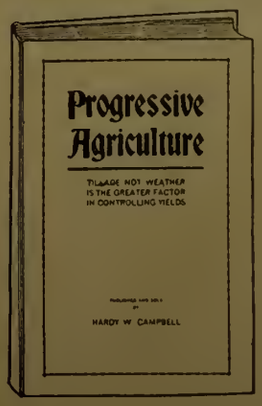
ROVER LAD
A good medium weight substantial stocking for children. Three-thread triple reinforced knees. Strongly double reinforced heels and toes. Feet and toes are smooth, seamless and even. Black and white.
Price 40c pair

PATENTS That Protect and Pay
Send Sketch or Model for Search.
BOOKS AND ADVICE FREE
Watson E. Coleman, Patent Lawyer, Washington, D.C.

5 Cents an Acre Cash
Texas school lands for sale by the State at $2 an acre, 5c an acre cash, and no more for 40 years, but 3 per cent interest; send 6c postage for further information.
INVESTOR PUB. CO., Dept. 1, San Antonio, Texas.

DRY FARMING—CAMPBELL'S PROGRESSIVE AGRICULTURE

155 Pages—48 Illustrations



THIS book contains nineteen chapters, each dealing with specific factors of vital importance in all crop-growing questions. The New Tillage idea clinches the certainty of successful farming, not only in dry seasons, but any and all years. The chapter on Fertility alone is worth many times the book's cost. The explanation of the effect of certain kinds of tillage one year on the next year's crop is one of the big features, and, last but by no means least, it proves beyond discussion that timely tillage will control yields in spite of droughty seasons.

This wonderful book is being offered, including a three years' subscription to ORCHARD AND FARM, for one dollar and twenty-five cents. Mail your order today to the address below and the book will be mailed postpaid by return mail. This offer applies to both old and new subscribers.

ORCHARD AND FARM
LOS ANGELES, CALIFORNIA.

Value of Poultry Shows

IF poultry production is to be increased or even generally maintained on this coast poultry shows must be continued, multiplied and improved. To discontinue them is to deprive the other agencies for reaching the public and attracting its attention of a considerable part of their efficiency

War conditions make it necessary to plan and conduct shows so that they will make less than the ordinary demands upon transportation facilities and help and not handicap other war agencies. In considering the effects of war conditions upon American poultry shows, the fact that stands out most prominently is that the uncertainties of transportation tend to limit the area from which a show can draw exhibits. When such a condition comes as a sudden emergency there is justification for asking preferential treatment for shipments of exhibits; but, when it is known long in advance that the obstruction to shipment will probably exist, patriotism should lead show managers to endeavor to fill their classes with near-by exhibits and exhibitors to patronize the near-by shows.

In all propaganda for increased poultry production in war-time the policy has been to make use of existing means of reaching people, to cooperate with some established agency in such a manner that it will be permanently strengthened and made more efficient.

The development of a good poultry show, whether at a fair or independently, has always been the result of the interest and efforts of a few poultrymen. Where shows are being held under efficient management those in charge should have the hearty support of all poultrymen in the vicinity.

The attitude of the poultrymen making such a proposal usually determines the attitude of the management of a fair toward it. If the poultrymen are enthusiastic and ready to do the work necessary to make the display of poultry a notable one, the fair management are usually prompt to respond and willing to give the poultry department its share of space, publicity and prizes.

The first rule for making a successful poultry exhibition—whether in a big city or in a sparsely populated county—is to interest as many people as possible in it.

Another essential thing in making a poultry department interesting and instructive is the employment of qualified judges. Nothing is so discouraging to the novice in exhibiting poultry as the decisions and explanations of the judge who is supposed to be good enough for a country fair though he would not be considered for a minute as judge at a show where substantial interests were involved in the decisions or where experienced exhibitors were showing. The judge at a large show making decisions on very close comparisons of birds of very even quality may be exempt from explaining his awards in detail, but the judge at a small show has only half done his work when he has made his decisions—the other half is to tell exhibitors why certain birds are better than others and where the best on exhibition there might be improved.

Wherever possible the attendance of one or more representatives of the State college or experiment station should be secured for demonstrations and lectures. In any case arrangements should be made for a supply of literature from the State institutions and the United States Department of Agriculture for distribution to visitors, and for the display of a full line of the posters used in promoting poultry production.

FARMERS CLASSIFIED MARKET PLACE

Our rate for classified advertisements on the Market Place Pages is 3 cents per word for each insertion. Advertisements must reach us before the 21st of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

REAL ESTATE

FOR SALE—
HIGH CLASS SANTA CLARA COUNTY PROPERTIES.
SEVEN ACRES AND A BUNGALOW.
APRICOTS AND PRUNES.
Located 5 minutes' walk from the station, in an excellent neighborhood; we have for sale a high-class property of 5 acres in bearing Blenheim apricots; 2 acres in 3-year-old French prunes; has fine modern bungalow with every convenience, hardwood floors, electric range, expensive plumbing, etc.; has cottage for help, garage and modern pumping plant, equipped with a Kewanee high-pressure tank; also stable and poultry houses and yards for 500 chickens; an exceptionally good place; price, $9500.
10 acres and a bungalow, located 5 minutes' walk from the station; the soil is rich and fertile and is all planted to English walnuts and apricots with alfalfa in between; has a new, modern bungalow with every modern convenience, even to an electric range; has fine water plant, garage and equipment for 1000 chickens; price $10,000; an offer will be considered.
BEAUTIFUL HIGHWAY PROPERTY.
30 acres first-class soil on State Highway, in an excellent neighborhood; 10 acres in young, bearing prunes, 10 acres in young, bearing apricots and 10 acres in bare land; has a fine, modern bungalow of 7 rooms with every convenience; complete set of out-buildings, domestic water plant and engine, house for help, etc.; trays, boxes, implements, horse and complete equipment go with the place; there is a fine electric pumping plant on the property, which produces about $1000 annually from sale of water outside; one of the most attractive and productive places on the peninsula; price $35,000; terms of payment can be arranged.
A GENERAL FARM.
88 acres of sediment soil located one mile from the station, in the richest section of Santa Clara County; this place is equipped for general farming, dairy or stock raising; the place is fenced and cross-fenced and divided into 5 fields; each field is supplied with water; the place is now cropped to grain, with one field reserved for pasture; part of the place is now leased at $35 an acre for tomatoes; improvements consist of good residence of 6 rooms with the usual conveniences; large barn, dairy barn, granary, cottage for help, poultry and pig houses, yards, corrals, etc.; farming implements, tools, wagons, etc., included; price, $27,500.
All of the above places located within six miles of the Stanford University.
WILLIAM P. WRIGHT,
Mountain View, Santa Clara County, Cal.

ORANGE AND LEMON GROVE for sale—20 acres 4-year-old Eureka lemons and 10 acres 5-year-old oranges and lemons. Lots of water. Nothing finer in California. Will be a big crop this season. Must sell quick to settle up an estate. No agents. No exchanges. Address C. W. Mount, 522 Higgins Bldg., Los Angeles.

FOR SALE—My $800 equity in ten acres in a fertile valley, Riverside county. Will sell with improvements a small house, barn, wagon, buggy, one horse, 40 chickens, rabbits and two acres planted to corn for $1000. Plenty of water. Address H. Ditter, Route 1, Box 75, Perris, Cal.

RARE opportunity; 67 acres fruits, nuts, alfalfa, Tokays, etc.; irrigated; tools, tractor, horses and equipment; every convenience. Near State Highway and capital; beautiful location; price, $185 per acre. Send for full information. Address Box 163, ELK GROVE, CAL.

FOR SALE—Income city property, or would exchange for small improved farm. Property consists of modern six-room house, centrally located; fruit trees, garden, chicken coops. Two minutes from car lines. Write particulars. A. C. Olker, 4070 Santa Rita ave., Oakland, Cal.

WELL-IMPROVED TWO-ACRE POULTRY RANCH and suburban home in best part of Santa Clara Valley. Can arrange to take part payment from profits. Owner, J. H. Stubbe, Box 67, Palo Alto, Cal.

FOR SALE—A bargain. Ten acres desirable cherry land in Atascadero Colony, California. Paid principal and interest $5400. Present price to get money quickly $4000. Carl Storla, Paso Robles, California.

STUMP LANDS, FAMOUS FRUIT, HAY BELT, Hood River Valley; irrigated; practically level; employment; 10 years' time. Box 185, Hood River, Oregon.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

GOOD HOG OR DAIRY RANCH—200 acres; 70 acres alfalfa land; good buildings, running water; near town. M. Funk, Etna Mills, Cal.

FREE list farms, farm and stock ranches, Sonoma and Mendocino counties; Russian River section. Miller & Cobbi, Inc., Healdsburg, Cal.

BARGAINS—Furnish you names and addresses free. Farms, unimproved lands, businesses, any kind, anywhere. Western Sales Agency, Minneapolis, Minn.

FOR SALE—90 acres in Humboldt County. Write for details. Roy Duzenbury, Garberville, Cal.

REAL ESTATE

EL DORADO COUNTY RANCH of 640 acres; all under fences and cross-fenced into five fields; 300 acres under cultivation, 100 acres summer fallow; two sets of buildings, houses eight rooms each, large barns and outbuildings; county road runs through the place; 100 acres creek bottom land, will raise anything; five good wells, seven living springs, besides water holes in creek ths year round. Price includes all farm machinery, two wagons, two mowers, self-binder, horse rake, plows, harrows, cultivator, ten tons hay, blacksmith shop and good set of tools. This is an A No. 1 ranch and must be seen to appreciate the beauty and value of it. Price $30 per acre; terms on part; no trade. Deal direct with owner. Address Box 800, Orchard and Farm, Los Angeles, Cal.

NO PAYMENTS DOWN.
FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS," AT ORLAND, CAL.; WATER FURNISHED BY UNCLE SAM; WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS; NO BETTER SOIL FOR ALFALA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET, "ORLAND FARMS."
F. D. BURR CO.,
219 MONTGOMERY STREET,
SAN FRANCISCO, CAL.

FOR SALE—As a sacrifice. Easy terms. 120-acre ranch for $12,000.00; inherited by two women who cannot manage place. Five miles from Rogue River Station, Oregon, twelve miles from Grant's Pass; 40 acres in 8-year old trees; 30 acres in apples, ½ Wintons, ½ Delicious; 10 acres in pears, ½ Bartletts, ½ Anjou. Orchard enclosed with a woven wire fence; good six-room house and garage. All in fine condition. Address 543½ N. Heliotrope Drive, Los Angeles, Cal. H. C. Chandler.

FOR SALE—329.74 acres; good for grain, corn, beans, etc., and Soudan grapes, small house, barn, good wagon shed, windmill and tank, two wells, good water, about 70 assorted fruit trees just beginning to bear; farm machinery in pretty good shape; blacksmith tools; about 3 miles hog fence, balance 2 and 3-wire; 18 tons hay in barn; 7 head horses; price, $30 per acre; $5000 down, balance mortgage, 6%; or $28 cash. E. E. Murray, King City, Cal.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents, for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Tex.

NO. 1004—75 ACRES ON RIVER, near steamboat wharf; 1500 fruit trees, mostly young peach and apple; 8-room dwelling, front porch, 2 halls, attic; shade; well fenced; 15 acres of woodland, chestnut and oak; 7 acres meadow; 6½ miles from county seat; barn and stable; new pig pens, 11x60; buildings worth $3500. Price, $3250. Russell Realty Co., Baltimore, Md. Catalogue.

FOR SALE—Partly improved fruit and alfalfa ranch up to 160 acres. Choice location, modern conveniences. Apples, pears and alfalfa ready to harvest. A bargain for a man with some money and wanting a choice home. Owner, Box 403, Lancaster, Cal.

FOR SALE—A bargain. Ten acres desirable cherry land in Atascadero Colony, California. Paid principal and interest $5400. Present price to get money quickly $4000. Carl Storla, Paso Robles, California.

FINEST olive land in State; also fine for peaches and berries. Under irrigation; ditch on property. 19 acres for quick sale; $500, half cash, bal. terms. H. H. Shufflelton, Jr., Redding, Cal.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information, address A. J. Smith, Groveland, Tuolumne County, California.

FARMS WANTED

WANTED—TO HEAR FROM OWNER of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minn.

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

REAL ESTATE—Sale or Exchange

FOR SALE—Thirteen residence lots, clear, in Richmond, California; would consider an exchange on improved ranch or city property. This is worth looking into. D. M. Hengerty, 4100 E. 14th st., Oakland, California.

FOR SALE OR TRADE—Two ranches, cheap for cash. Address "Rancher," Box 68A, Route 1, Winters, Cal.

REAL ESTATE FOR EXCHANGE

WE EXCHANGE Real Estate—Johnson & Temple, San Jose, Cal.

GOVERNMENT LANDS

RELINQUISHMENT FOR SALE—160 acres choice spot in Victor Valley, 18 miles east of Victorville, San Bernardino County; all level; elevation 2800 feet; 65 acres cleared of brush; well, good water; good loose soil $1000 cash desired. Will consider trade Owner, 1548 45th avenue, San Francisco.

BE PATRIOTIC—RAISE STOCK on productive Government land, plainly marked on county sectional maps; $2.50, ANY county. Booklet, particulars for stamps. Write Joseph Clark, Sacramento.

FARM LANDS, HOMESTEADS

HOMESTEADS—Where alfalfa yields 5 tons and wheat 60 bushels per acre; no waste land. Write or call on I. J. Studebaker, Winnemucca, Nevada.

FARMS FOR SALE

IMPROVED small farms near Manteca in one of the richest producing sections of the State. Prices are now reasonable. Walter Buchanan, Route 2, Ripon, Cal.

SAN JOAQUIN VALLEY LANDS

FOR SALE—20 acres, San Joaquin Valley near Farmington, partly improved. Easy terms. Box 115, San Bruno, Cal.

MONEY TO LOAN—Real Estate

ANY AMOUNT ON COUNTRY PROPERTY Bank rates. Write for particulars. We specialize on large country loans.
REALTY MORTGAGE CO.,
W. E. Palmer, Pres.,
918 Monadnock Bldg., San Francisco.

SITUATIONS WANTED.

A PRACTICAL English sheep breeder and fine wool grower from Australia, expert experience in steam cultivation and planting fattening pastures for stock and early spring lambs, is open to manage a first-class sheep ranch, or will examine and report upon suitable sheep properties and favorable conditions. Address Sheep Breeder, 1242 42d Ave., San Francisco.

F. C. PRAGNELL, Superintendent of the Woodside Stock Farm, open for re-engagement. Box 187, Woodside, Cal.

WANTED—Agents, Salesmen

WANTED—A good live boy or girl in each territory to handle the agency for Orchard and Farm; good money to the right party and a good growing business; costs nothing to secure full details. Address department P, Orchard and Farm, P. O. Box 136, Los Angeles, Cal.

AUTO TRAILERS

AUTO ACCESSORIES, SUPPLIES

FORDS CAN BURN HALF COAL OIL, ALL DISTILLATE, or Cheapest Gasoline, using our 1918 Carburetor; 34 miles per gallon guaranteed. Easy starting. Great power increase. Attach it yourself. Big profit selling for us; 30 days' trial. Money back guarantee. Styles to fit any automobile. Air-Friction Carburetor Company, 325 Madison st., Dayton, Ohio.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES, SAMPLES and slightly used. Four floors Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC
The Yellow Front. Established 1892
112-118 South Los Angeles St.,
Los Angeles, Cal.

FARM TRACTORS, MACHINERY

IDEAL HOIST FOR UNLOADING HAY, driving fence posts, stretching fences, erecting buildings and numerous other purposes around the farm. Inexpensive, great labor saver. Send for pamphlet. U. S. Iron Works, Seattle, Wash.

TRACTORS FOR SALE—Two Moline Tractors, new, at substantial reduction, with draw-bar and two-point plow attachments each. Under clearance, 30 inches. Address A. B. Harris, 181 Vernon Terrace, Oakland, Cal.

ENGINES

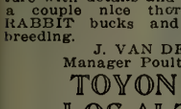
SEVERAL NEW AND SLIGHTLY USED ENGINES. ARNOTT & CO. Implements 112 South Los Angeles st., Los Angeles

FARMERS' CLASSIFIED MARKET PLACE

Our rate for classified advertisements on the Market Place pages is 3 cents per word for each insertion. Advertisements must reach us before the 21st of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

POULTRY

FOR SALE—Thoroughbred S. C. W. Leghorns, Dutbernd strain. Pullets hatched Jan. '18 and March '18. Hens hatched Jan. '17 and March '17. White P. Rocks, Fishel's strain, finest type. Hatching eggs from same $1.50 per setting. Are you interested in Rabbits? Write me for the most practical hutch and I will send you FREE a picture with details and measurements. I have a couple nice thoroughbred N. Zealand RABBIT bucks and does, right age for breeding.
J. VAN DEN BERGH,
Manager Poultry Department,
TOYON FARMS,
LOS ALTOS, CAL.



Baby Chicks Every Day

Poultry of all kinds, Rabbits, Guinea Pigs, Canaries, Peafowl, Pheasants, Cats, Dogs and everything in hair, fur and feathers. Let us know your wants. What we do not have, we can secure for you. We ship everywhere. Write for price list.
FANCIERS' EXCHANGE,
640 South Main street, Los Angeles, Cal.

FALL CHICKS FOR SALE—400,000 S. C. White Leghorn chicks from free range Hoganized stock only, for delivery from July to December, at very reasonable prices. Fall chicks are most profitable—broilers in ten weeks, pullets lay at five months. We guarantee safe delivery of all chicks to destination. Shipped safely anywhere west of the Rockies. No money in advance, pay on delivery. Special prices on 500 and 1000 lots. Finest hatchery in the world. Established over twenty years. Further information write Must Hatch Incubator Company, 423 Seventh street, Petaluma, Cal.

WE are specialists in the production of high-grade S. C. White Leghorn Baby Chicks. Thoroughbred heavy laying strains of America's choicest Leghorns fill our breeding pens and my personal attention is given to all details, assuring each customer of highest quality stock. Our catalog is free. It fully describes the stock, eggs and chicks, containing photos showing the ideal conditions and methods used to make our Baby Chicks worth having. A postal mailed today will bring it to you. The Vineburg Hatchery, F. C. Rhode, Prop., Vineburg, Cal.

FOR SALE—Take advantage of this special offer of a year's subscription to the California Poultry Journal, the leader in California, or a one year's subscription to the Northwest Poultry Journal, the leader in the Northwest, including one year's (new or renewal) subscription to Orchard and Farm for only seventy-five cents, or both poultry journals for one year and Orchard and Farm one year for one dollar. Mail your order today to Orchard and Farm, Los Angeles, Cal.

START NOW—Highest-priced broilers, fryers; hundreds vigorous chicks from large stock Reds, Rocks, Anconas, Minorcas, 15c, 16c; Leghorns, 13c; Wyandottes, Orpingtons, Brahmas, 20c, 25c; 8 weeks, older pullets, cockerels, ducks, turkeys. FEW FINE BREEDERS GREATLY REDUCED. Males below half. Government trap-nested, 200-283 eggs yearly! Clearing $5. W. Beeson, PASADENA, CAL.

FINEST HATCHERY IN THE WORLD—Baby chicks, Rhode Island Reds and White Leghorns, settings, 100, 1000 hatched right in our $60,000 brick and concrete hatchery from our quality heavy layers; reasonable prices; stock hatching eggs. Pebbleside Poultry Farm, Sunnyvale, Cal.

FOR SALE—Early hatched cockerels. White Leghorns. Carefully bred for 15 years for vigor, heavy laying and standard requirements. Trapnested and Hoganized. McFarlane strain. A Worel, R. D. 3, Napa, Cal.

BARRED PLYMOUTH ROCKS—Champion prize winners and wonderful layers. Stock for sale—nothing better in poultry than Vodden's Rocks. Catalog free. Vodden's Rockery, Los Gatos, Cal.

FALL CHICKS—Book orders now for your future meat and egg supply. Write for special circular on fall chicks. Stubbe Poultry Ranch and Hatchery, Palo Alto, Cal.

CHIX—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas; Buff, White and Brown Leghorns; breeding cockerels. Enoch Crews, Seabright, Cal.

"EASTMAN'S Bred-to-lay" Hoganized and trap-nested barred Plymouth Rocks. Sept. CHICKS; eggs; cockerels. Airedale puppies. Fairmead Poultry Farm, Fairmead, Cal.

WANTED—1000 POULTRYMEN to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Imschweiler, Inglewood, Cal.

S. C. R. I. EGGS, $1.50 setting. Hewitt & Hewitt, Dixon, Cal.

RABBITS AND PIGEONS

"SCIENTIFIC FUR FARMING." A profitable, spare-time business, good for $1500 per year and more. RAISE STOCK FOR US—We buy all you raise. We pay you the highest market prices and furnish perfect breeding stock. GO INTO BUSINESS FOR YOURSELF. Our booklet and details mailed for 10 cents.
DEPT. X.
LOS ANGELES FUR FARM,
C. E. Sherman. J. M. Sherman.
2669 N. Griffin Ave.,
Los Angeles, California.

RABBITS—Food for the table, fertilizer for the garden, furs to keep you warm. "Richey's Rabbit and Cavy Book," second edition; will teach you everything pertaining to this delightful work; thirteen chapters; twenty-eight beautiful illustrations. Price, 50c. "Making a Living on an Acre and Care of Rabbits"; price, 25c. Mrs. C. A. Richey, 616 N. Benton Way, Los Angeles. Breeder of New Zealand Reds since 1914, and black and white English furs, long and short hair.

CALDWELL'S RELIABLE RABBIT REMEDIES—Snuffle remedy, 75c; ear remedy, 35c; slobber remedy, 35c; vent ointment, 35c; tonic, 65c; all postpaid. Cure or money back. Agents wanted. Circular, New Zealand Reds, free. Caldwell Rabbit Farm, 2526 San Fernando boulevard, Los Angeles, Cal.

NEW ZEALAND REDS—Pedigreed, none finer. Richly colored, four red feet and creamy bellies. Also fine red utility stock, three, four and six months old. E. Kelly, 834 Main st., Petaluma, Cal.

PIGEONS—BUY BIG BIRDS. Homers, Carneaux, White Kings; 15 to 20 pounds squab a year per pair. E. B. Julian, 1506 O street, Sacramento, Cal.

ARMSTRONG'S NEW ZEALAND RED RABBITS—Improve your stock with a good, healthy buck; prices right. Armstrong's Rabbit Yards, Petaluma, Cal.

FLEMISH, Reds, Himalayans, 2 to 18 months, from pedigreed bucks, $1.50 to $5.00, according to age. F. Aitken, 1004 S. 9th, San Jose, Cal.

RABBITS—Choice young New Zealand Red Breeding Stock for sale. R. C. Specht, Route A, Sonoma, Cal.

MONEY IN RABBITS—Raise rabbits for us. Will pay $6 per pair. Send stamp for reply. H. E. Gibson Co., Arcadia, Cal.

FOR SALE—Rabbits, New Zealand and Flemish Giant. Paul Kruger, Watsonville, California.

PATENT ATTORNEYS

HAZARD & MILLER, ATTORNEYS AT LAW—Patents and Patent Causes. Henry T. Hazard established the agency in 1878, which has been uninterruptedly in business since that time. Herman Miller, eight years examiner in U. S. patent office. Our library contains the record of every U. S. patent. Examination without charge. HAZARD'S 1918 BOOK ON PATENTS FREE. 504-505-506 Central Building, Sixth and Main streets, Los Angeles.

PATENTS that protect are secured through us; established fifty years. Send for free booklet on "Patents." Pacific Coast Patent Agency, Inc., Stockton, Cal.

LUMBER—Building Material

EVERYTHING FOR THE BUILDER—All kinds of second-hand building material; doors, windows, lumber, shingles, corrugated iron, cement trays at the lowest prices, send list and get estimate; country orders and carload lots a specialty. H. McKevitt & Son, Wreckers, 1849 Mission street, near 14th, San Francisco, Cal.

LUMBER BARGAINS for poultry men and farmers. Special prices to reduce our stock this month. Woodhead Lumber Co., 5800 South Main street, Los Angeles, Cal.

WATER PIPE AND CASING.

SURFACE IRRIGATION PIPE FOR SALE—Ten-foot lengths, 20 gauge, 10 and 11-inch, new, at substantial reduction. Have 4000 feet. Address Ramsey Probasco, 2436 Virginia St., Berkeley, Cal.

CHIROPRACTIC COLLEGES

BE A CHIROPRACTIC DOCTOR—7000 now practicing; new method of curing and preventing diseases. Catalogue free. Dr. Charles A. Cale, president, Los Angeles College of Chiropractic, 931 South Hill street, Los Angeles, Cal.

PARCEL POST

CO-OPERATION (NOT OPERATED FOR PROFIT) reduces living expenses. Particulars and catalog from Co-Operative League, Commercial street, San Francisco.

LIVESTOCK—Chester Whites

CHESTER WHITES—The BILIKEN brand. Say! Listen! Are you going to need a boar this fall? Better buy him now. Have a dandy lot to select from that are low priced enough to move rapidly. Few bred sows left to farrow during October. Just a very few weaned boar pigs. Open fall gilts. Special October prices. Write for them. C. B. Cunningham, Mills, Cal.

LIVESTOCK—Sheep, Milch Goats

D. E. KELLIHER—Importer and breeder of Hampshire sheep, Eugene, California, offers for sale a choice lot of yearling Hampshire rams sired by Walnut Hall and Butterfield rams purchased at Salt Lake August, 1916. Inspection and correspondence invited.

TOGGENBURG GOATS—Edwin Pritchett, Mojave, Cal. Enclose stamp.

LIVESTOCK—Poland Chinas

HEWITT'S BIG TYPE POLAND CHINAS—Bred sows and gilts. Hewitt & Hewitt, Dixon, Cal.

LIVESTOCK—Duroc Jerseys

DUROC-JERSEY BOARS, both weanlings and old enough for service. Prices right. Breeding and satisfaction guaranteed. H. E. Boudier, Napa, Cal.

BIG TYPE Duroc Jersey Boars and Gilts. Geo. DeBok, Oregon City, Ore.

LIVESTOCK

I NOW OFFER MY SPRING PIGS, sired by Cook's Hancherdale Jones, a grandson of the famous Gertsdale Jones, and out of big, prolific sows, the best of the "Big Types." Write for prices and further information. J. H. Cook, Paradise, Cal.

FOR SALE OR EXCHANGE—For land, large black registered jacks and jennetts; best bunch in California. A. L. Allen, Perris, Cal.

BONE SPAVIN, splint or ringbone removed with one application. Money-back guarantee. Henry Chappelle, Woodburn, Ore.

MISCELLANEOUS

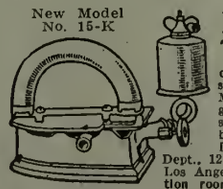
EVERYBODY should read The Great Exchange story; mail order, real estate, investment and general information weekly; contains 20 to 40 pages of opportunities; offers, plans, secrets, bargains, cash buyers, etc., that will put you on the road to more money making. Your name printed in our opportunity directory and a special 2 months' subscription for 25c. Ad rates 3c per word for four insertions. Thousands of "live wires" to read your ad. Address The World's Mirror, Beaumont, Texas.

$5.00 A DAY GATHERING EVERGREENS, ROOTS and HERBS. Ginseng $14 lb.; Belladonna seed $64 lb.; or grow it yourself. Book and war prices free. Botanical, 50, New Haven, Conn.

I WILL DELIVER a small box of lemons for $1.00, containing 4 dozen; prepaid to any part of the U. S. Ernest Vince, Santa Barbara, Cal.

MISCELLANEOUS—FOR SALE

New Model
No. 15-K



Do You Iron Today? If so, keep cool. Use the Imperial self-heating Iron. Makes its own gas, generated from kerosene. The cheapest and best iron made. Cole Lite & Sales Co., Lamp Dept., 1216 to 1220 E. 41st st., Los Angeles, Cal. Demonstration room, 246 S. Spring St.

ICE PLANT—A "Barber" machine, best in the world, valve-in-head type; three tons capacity; 800 feet ammonia pipe and 1000 lbs. casting valves, bends and other essential fittings; all good as new; a complete refrigerator plant, fifteen horse, upright steam engine and fittings thereto. Entire plant $800 f. o. b. Coquille, Oregon. This outfit cost three years ago over $2100. Will earn $2000 per year on eggs alone; will be sold at a real bargain for cash; shipping weight, five tons. Pacific Agricultural Station, Coquille, Ore.

A. LEVIN, successor to Kelly Machinery Co. All kinds and sizes of Pipe, Engines, Boilers, Pulleys, Shafting, etc. Good second-hand Wire Rope, Manila Rope and Barb Wire. 524 Mission Road, Los Angeles.

HAY FOR SALE—200 tons No. 1 Oat Hay, baled. Sale to consumer at reduced rate. Address A. B. Harris, 181 Vernon Terrace, Oakland.

MEDICAL

CONSTIPATION cured without drugs. Over a dozen methods sent free. Liberty Company, Station D, Box 4007, Cleveland, Ohio.

GUARANTEED SEEDS

NEW NOVELTIES, PROLIFIC, PRACTICAL plants for "War" gardeners. Listen—GIANT MARROW CABBAGE grow ten feet high, sometimes bear yard-long leaves, some 20 inches wide. Can be planted all year round for California climate. Best winter grower. NO WASTE, as with kale; solid, marrow laden, ENTIRELY EDIBLE trunk, quickly increases egg, butter and flesh production; best "GREENS" grown; 500 GUARANTEED, PEDIGREED SEEDS, 25c; five such packets, $1; acre supply, $2. "GOLDEN POTLACH" bush Pea produced three crops from the same roots. Sweetest, greenest, tenderest; "canning" unnecessary; well-soaked ripe peas, properly cooked, equally palatable; regular packets, 10c; 6 for 50c.
RAREST BEANS, bush and pole, for coast plantings; packets, 10c.
"PURPLE PERFECTION POTATO"—Salad specialty, frost-proof, prolific, super-early; demands CONSTANT GROWTH, assuring two crops yearly for Californians without "keeping-over" worrying. Sample 10c, pound 35c; three pounds, prepaid, 90c. Photos, particulars, FREE.
E. E. MARTIN, Guaranteeing Seedsman, B-4, Charleston, Washington.

NURSERY TREES AND PLANTS

THOMPSON'S SEEDLESS AND EMPEROR GRAPES have unbeatable prospects; produce heavy, uniform crops; high prices certain; bear well third year. Unexcelled raw land, $70 acre and up; good for oranges, olives, figs, early fruits. Can arrange to bring into bearing. Mature vineyards bringing $700 to $1000 an acre. Write or visit D. J. Whitney, Exeter, Cal.

FIELD SEEDS, GARDEN STOCK

SEED, GRAIN, THRESHING Machine and Harvester Screenings Wanted—Cash paid for large or small quantities. Mail samples on which we will quote. Mercantile & Warehouse Co., Fifth and Poplar streets, Oakland, Cal.

WANTED—Spineless Cactus, both forage and fruiting kinds. J. F. Zion, Box 10, Oatman, Ariz.

DRIED VEGETABLES & FRUITS

HOOVERIZE YOUR TIME, MONEY AND POTATOES; get a vegetable drier. Dry your potatoes; make flour, and save wheat for the BOYS over there. With every order for a DRIER we send the Arcade Grist Mill FREE. The drier is portable, and fireproof, and any one can run it. Price $450 f. o. b. Terms. Address New Way Vegetable Drier, 227 13th st., San Francisco, Cal.

MISCELLANEOUS—Wanted

WANTED—Ranch homes for boys from eight to thirteen years, healthy. Apply Children's Home Society, 2414 Griffith ave., Los Angeles, Cal.

ASSAYERS AND GOLD BUYERS

GOLD, amalgam, rich ore bought, cash; assaying, 60c. Pioneer Assaying Company, 636 Market street, opposite Palace Hotel, San Francisco, Cal.

COMMERCIAL PRINTING.

1000 BUSINESS CARDS for $1; letterheads, envelopes, bills, wedding work, show cards, rubber stamps. ROBERT HILL, 2188 Sutter street, San Francisco.

TRUCK GARDENERS, FARMERS, FRUIT GROWERS!

Turn your Fruits and Vegetables into Dollars with a SOUTHERN CANNER. Suitable for ranch or small cannery. WANT $250 or would exchange; Ford auto preferred. Write
H. C. YERXA, 2109 Bancroft,
BERKELEY, CAL.

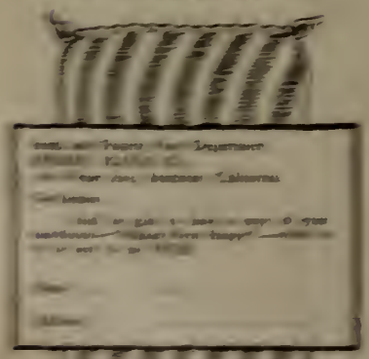
"Can I get as many eggs from my hens as I should?"

Surely!

If you have not received a copy of the 1931 edition of our handbook — "Make Hen House" — we want you to have one. It is a splendid guidebook to success in the poultry business and we have so much about poultry-raising that we can afford to overlook the big money-saving and money-making suggestions embodied in the booklet.

There has been such a tremendous demand for this booklet, however, that we cannot say how long the supply will last. So—the sooner we hear from you. If you fill out the coupon below and mail it today—we will promise to get your copy in your post-box.

Mail the coupon NOW!



After all, the problem simmers down to feeding. If you let the hens loll around waiting for *you* to make use of the emotive eggs that are in them—you won't find it very profitable waiting.

You know that Nature provides each laying hen with just so many eggs in emotive. And—if you leave it to Nature, then she will take up to seven years to produce her quota of eggs. And incidentally, she will leave you high and dry—by the time you have paid for her feed and keep all that time. Sort must it be—is there?

Your job, then, is to see that the hen produces her *full* quota of eggs *in one or two years*. And—the bigger part of your job is to see that she gets the proper feed—the balanced ration—she needs to give you the best and the most that's in her.

Quite a problem—you say? It is—if you waste a lot of time, money and energy experimenting with home-mixed feeds and mashes. But it isn't—and it won't be—if you do what thousands of successful poultrymen are doing today—if you hark to Surelay.

Surelay contains eleven distinct ingredients that every hen in your flock needs to make her a profit-producer. It is made so good, so wholesome, so tasty, that every time Mrs. Hen takes a peck of Surelay she is eating a little of everything that goes to make up an egg.

There is nothing mysterious about Surelay—or what it will do. You know what to expect of it—day in and day out. You know that it contains just the proper proportion of protein for the white—just the right amount of fat for the yolk—just enough lime for the shell.

And, what's more, we make no secret of it. You will find an analysis printed on the back of every sack. And remember, what's on the sack is in the sack, and that's what makes the egg.

So—what's the use of bothering with hand-mixed feeds that are only guesswork at the very best? Where's the bother-and-worry? Why not "cash in" on the experience of countless poultrymen who have found that Surelay—a uniform, high-grade, perfect-balanced ration—is always the most economical, convenient and dependable feed you can use?

[Be sure to look in your Surelay sack for the Certificate that entitles you to our 1931 Surelay Egg Record and Calendar]

PRODUCERS OF QUALITY FLOUR AND PRODUCTS

SPERRY FLOUR CO.

STOCKTON, CALIFORNIA

SURELAY

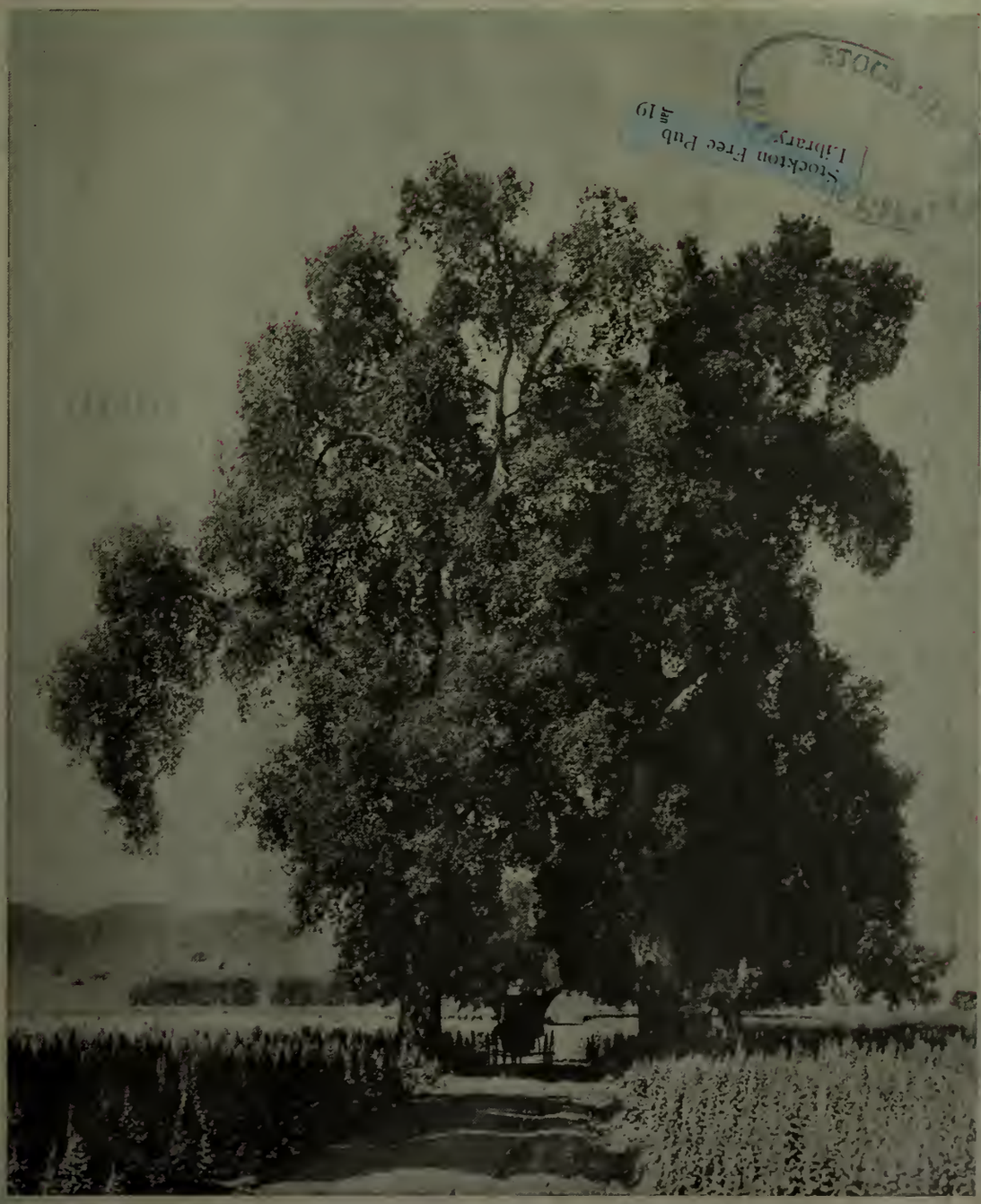
"A Sperry Product"

You Cannot Be Neutral! Read the Single Tax Debate

October, 1918 [The Farmer and the Bridge of Ships 10cPer Copy

ORCHARD and FARM

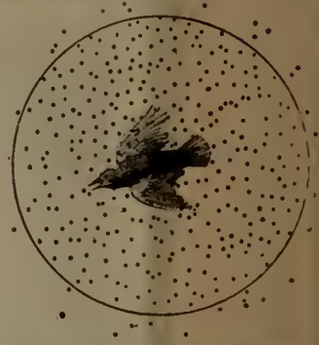
ESTABLISHED 1888



Stockton Free Pub Library

Grow Your Own Fertilizer

A gun that shoots a patchy pattern like the above cannot give reliable service. The birds often get through.



The hard-hitting Winchester pattern is evenly distributed. It brings down every bird within its spread.

Why the Model 12 is the ideal shotgun for the farm

WHEN a farmer buys a shotgun, he buys it for a double purpose; **first** to clear his farm of crop-destroying, chicken-thieving pests; **second** to provide an effective weapon for upland game birds, prairie chickens or ducks—for where is the farmer who does not enjoy a day or two of hunting now and then?

In return for his investment, the shrewd farmer demands, and has every right to demand, a gun that will **bring down the birds every time.** Plugging at a flock of crows, he must be sure of exterminating as many as come within the shot pattern. Taking a wing shot at a plover, he wants to be certain of a pattern that will land at least the three pellets necessary to a "kill" in the body of the fowl.

The gun for the purpose

Farmers who are versed in the lore of the shotgun know that there is one gun that gives them the results they want—the Winchester Model 12. Where results count, this master weapon meets every requirement.

The Winchester Model 12 is a beautiful gun, light in weight, and simple and sure to operate. Superbly balanced, it points like your own arm. It can always be relied upon to plant a **close, even pattern,** with **lots of force** behind it, at the range for which its choke adapts it. It works smoothly and surely in whatever position it is held.

There is a gauge and a bore of the Winchester Model 12 to give you just the kind of a pattern you want. Built in 12 gauge, weight 7¼ lbs.; and in 16 and 20 gauge, weight about 6 lbs. For those who prefer a hammer action gun, the Winchester Model 97 is the usual choice. Built in similar lines to the Model 12, but with hammer action.

An axiom of gun making

Men who know guns realize that the accuracy and durability of a gun depend primarily upon the barrel. To them the quality of the barrel measures the quality of the gun. With Winchester the barrel is the gun. For years this has been an axiom of gun building in the Winchester shops. Through the most unremitting attention to boring, finishing and testing, Winchester has developed a single standard of barrel quality which prevails in the highest and lowest priced Winchester models.

How the barrel is bored

The barrel of the Winchester Model 12 is bored to micrometer measurements for the pattern it is meant to make. The degree of choke exactly offsets the tendency of the shot to spread. Until its pattern proves up to the Winchester standard, no gun can leave the factory. The nickel steel construction preserves the original accuracy forever.

The Bennett Process, used exclusively by Winchester, gives the Winchester barrel a distinctive blue finish that, with proper care, will last a lifetime.

What (PW) means

Look for this mark on the barrel of a Winchester gun. It means that the gun has been subjected to the **Winchester Definitive Proof test.** It stamps the gun with Winchester's guarantee of quality, which has 50 years of the best gun-making reputation behind it.

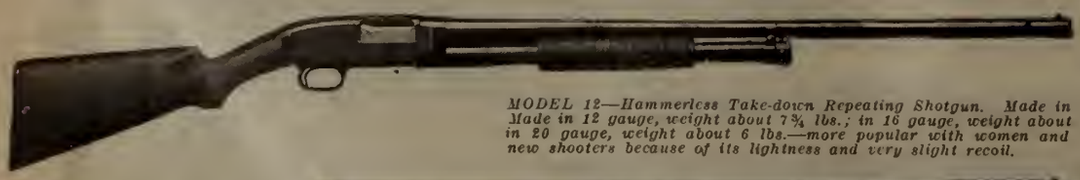
Every gun that bears the name Winchester, and that is marked with the **Definitive Proof** stamp, has been fired many times for smooth action and accuracy. It has also been fired with excess loads as a test of strength. At every stage of Winchester manufacture, machine production is supplemented by human craftsmanship. **Every Winchester gun is perfected by the test and adjustment process.**

It is this care in manufacturing that has produced, in the Model 12 and Model 97, guns of unsurpassed game-getting qualities—guns that have won the name of "The Perfect Repeaters" among wild fowl hunters.

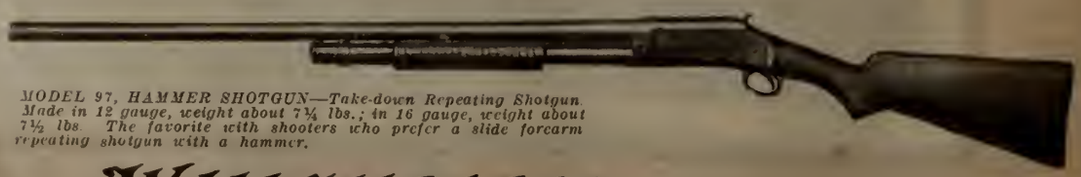
Write for details of Winchester shotguns and shells

Detailed specifications of the Model 12 and Model 97, and also our new booklet on shells will be sent on request.

WINCHESTER REPEATING ARMS CO.,
Dept. WK-21. New Haven, Conn. U. S. A.



MODEL 12—Hammerless Take-down Repeating Shotgun. Made in Made in 12 gauge, weight about 7¾ lbs.; in 16 gauge, weight about in 20 gauge, weight about 6 lbs.—more popular with women and new shooters because of its lightness and very slight recoil.



MODEL 97, HAMMER SHOTGUN—Take-down Repeating Shotgun. Made in 12 gauge, weight about 7¼ lbs.; in 16 gauge, weight about 7½ lbs. The favorite with shooters who prefer a slide forearm repeating shotgun with a hammer.

WINCHESTER

World Standard Guns and Ammunition

ORCHARD and FARM

Published monthly. Subscription rates: 50 cents a year, $1 for three years. Entered as second-class matter at the postoffice at Los Angeles, Cal.

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Pacific Coast Farmers and the "Bridge of Ships"

By Edward N. Hurley, Chairman United States Shipping Board

FROM the moment of our declaration of war against the Central Powers, the American farmer ceased thinking in terms solely of American markets. He at once became the man to whom a tremendous proportion of the human race looked for food. The world became his market; American terminals marked merely the relay points for his products on their hauls to destinations thousands of miles away.

We began to fill the order for millions of men and millions of tons of food for the ports of Europe with the most heartbreaking lack of preparedness. But another year at the rate we are going will find us perhaps the best prepared power, militarily and economically, in the world.

And ships will form the foundation. Without them Europe would starve; without them we never could fill our place in the ranks at the front. There are 4000 miles of deep sea between us and the people we must feed and the battle ground of freedom.

There are millions of bushels of wheat and tens of thousands of tons of meat stored in the ports of Australia, India, and the Argentine. But they might just as well never have been grown. Neither England, France, nor the neutral powers have the ships to spare for the long hauls necessary to tap these dormant resources. America is their market and will continue to be for the remainder of the war.

Our Ships on the Pacific Ocean

The Panama Canal was undertaken, not from any selfish or sectional motives, but as a great American task for the service of the world. When we started to make the dirt fly on the Isthmus, nobody could have foreseen that within ten years we would be building merchant ships by millions of tons yearly. It simply shows how one great enterprise leads to another. What we put into the Panama Canal in the way of national spirit and international vision we must now put behind the American merchant marine. They are both part of the same great national and world development.

The Pacific Coast has both a national and a local interest in our new ships. It has led in production of tonnage to win the war, and if every ton of shipping built on the Pacific Coast were to be sent through the canal to win the war, never to come back, I know the Pacific Coast would continue to build, and increase its speed and production, just as it has thrown all its other resources into the supreme world task.

But hundreds of these ships will come back to the Pacific when peace returns. Many of them will remain in Pacific service after delivery. Matters of policy touching the American merchant marine cannot now be determined—we must first win the war. But the development of Pacific and Oriental trade and markets for the products of the Pacific farmer, lumberman, miner, fisherman, manufacturer and merchant are inseparably bound up with the development of a great American merchant marine. This is not a local matter at all, but a national necessity. The United States faces two oceans. The Pacific offers its own opportunities for the development of trade and the rendering of service to other nations. When final policies are shaped for our merchant marine and ships assigned to American trade routes, the same patriotism and energy put into the building of ships by the Pacific Coast will assure that part of the nation its place in the American merchant marine, and Pacific Coast farmers will be benefited no less than those of other sections.

Never has shipping played so great a part in the working out of the destinies of the human race. The lack of bottoms has been felt throughout the world. Nor has the American farmer escaped the pinch.

Effect of Congestion on the Farmer

Last year our ports broke down under the load of export cereals. When this happens the inevitable result is a damming up of these products on the farms. A bale of cotton has had to fight for space in the hold of a ship needed for grains and meats. Spain's great stores of pyrites, needed here for the making of fertilizer, could not be moved because there were not the ships to move them. Great Britain was forced to place an embargo on apple imports. This diverted to domestic markets the crops which in the past had been marketed abroad.

During the remainder of the war the Government will use every possible agency to clear our ports of farm products in greatest demand abroad, and in certain instances it is guaranteeing prices. But this is the result of war emergency conditions. After the war the only guarantee of markets and prices for the American farmer's output in excess of home needs will be a fleet of ocean going vessels—the American merchant marine.

The peace-time expansion of his business in foreign markets has unlimited possibilities so long as he has at his disposal the means of shipping that produce clear of American ports. In the past we delegated that important function to any and every ship afloat. Few, very few, of these flew the American flag.

Products Were Carried by Foreign Ships

Before the war American ships carried just 8 per cent of America's exports. We were at the mercy of foreign shipping and had accumulated a tremendous debt, made up largely of freight charges due the other fellow.

What wheat exporter does not recall how in the early days of this war the normal rate of 4 cents a bushel on grain from New York to Liverpool jumped to 40 cents? And have we forgotten how the rate on cotton from Galveston to European ports climbed from $2.50 to as high as $15?

Under such conditions, before we entered the war, the farmer got less for his cotton and grain on the farm under increased ocean freight charges than he got in normal times.

These conditions were made possible simply because we depended upon others to go to market for us, but from now on we intend to take charge of our own export business and, while assuring ourselves of a sufficient amount of tonnage at all times, will keep those millions in freight charges at home.

It is the cutting down of the mileage traveled by rail and increasing the mileage traveled by water that lowers the cost of transportation and enables the farmer to do a successful business in foreign markets.

The argument has been advanced that the United States never can hope to compete with foreign shipping on a coal basis. But in our new program we are not figuring on competing with any nation's merchant marine on a coal basis. We plan to take advantage of our tremendous resources of liquid fuel. New marine engines are being perfected for burning oil which effect remarkable economies. An oil-burning freighter has made the trip from a Swedish port to San Francisco in 55 days. About half the operating expense of a coal-burning vessel is in the engine room. The new type works economies here, cutting down space hitherto allotted to coal burners to about one-fifth. Then, too, there is the economy in stokers.

These are some high lights on what our new merchant marine promises for the future. *By the end of next year it is possible that we shall have 20,000,000 tons of merchant tonnage afloat, as great a merchant marine as Great Britain possessed at the beginning of this war.*

The Stars and Stripes in Every Port

But we are not going to stop there; America never does things by halves. And when she decided to put the Stars and Stripes floating once more from the masts of a strictly American merchant marine she planned never to rest until that fleet of merchantmen was great enough to serve the cause of humanity in the great crisis of today and in peace to serve the world in the development of its future trade. Just as these vessels we are launching today are serving unselfishly under the American flag, so they will serve ourselves and other nations after the war.

I wish it had been possible for every American farmer to see a certain strip of jungled marshland nine months ago when our Government decided to convert it into the greatest shipyard in the world. That marsh now is the Hog Island Shipyard, a veritable metropolis of steel and concrete, with 50 shipways driving with might and main to produce the initial order for 180 ships before August, 1919.

I wish every man who is marching in the furrow to the cadence of his son's step in France could catch the vibration of those hundreds of riveters putting the steel sides in place. The sight and sound of it are inspiration enough for any man with a single drop of American blood in his veins.

Every ship that slides down those ways will be christened in the name of freedom and sent to play its part in the undoing of autocracy. And when that task has been accomplished these same ships will be commissioned, not one bit less by the farmer than by the manufacturer, to visit the ports of the world. The farmer as well as the manufacturer has every reason on earth to think about the American merchant marine and to work for it

Storing Potatoes

To Prevent Dry Rot

"TO put the second crop of potatoes in a cellar which is dirty or contaminated by rot and mould, is to be almost sure that the 'spuds' will be partly spoiled and a very valuable food product lost," one of our readers reminds us. He suggests at least sorting over what potatoes are in the cellar, or if none are on hand, cleaning out every bit of vegetable matter, sweeping and brushing thoroughly, and giving the place a good dose of fungicide, either in the form of a spray or as gas. If only a few sacks are in storage, it will even pay, he believes, to take them out and clean up the place before putting in the new tubers.

Fungicides to Use

For each 1000 cubic feet of space he uses 10 ounces of formaldehyde and 5 of potassium permanganate Pour the formalin over the permanganate in a deep container, and then leave the cellar immediately, because the gas is given off at once.

Should these chemicals be unobtainable, a bordeaux mixture of 5-5-50 strength may be used. It may be applied with hand sprayer, pump or broom; it is effective when thoroughly used and does not cost much. (Bordeaux mixture, 5-5-50, consists of 5 pounds copper sulphate, 5 pounds quicklime, water to make 50 gallons).

It is expecting too much, we must agree, to look for potatoes fit for market from a dirty, ill-ventilated cellar. Time, money and work spent in growing a crop are wasted if the potatoes are stored where dead potatoes are carrying over the organisms that cause rots. "Dry rot" attacks newly stored potatoes through bruises and wounds and spreads throughout the stored supply.

Many Cellars Polluted

Many farmers, there is no doubt, have cellars that now contain piles of sacks of potatoes which are rotten, sacks and all, and which constitute a wet, foul mass that helps to decay the timbers and menaces the crop to be stored.

Care of Grape Cuttings

To the Editor of Orchard and Farm:

Perhaps my experience in the management of a grape-cutting nursery would be of benefit to others; I have been very successful with my nursery; have as fine a one as you will see anywhere, in red ground. And while most of my neighbors have lost nearly all of their cuttings, some of mine have grown four feet or more, and 95 per cent are living. My cuttings are Thompsons and Emperors.

It is easy to get good results if the proper methods are followed. I take the cuttings with two or three butts, not too small wood, and tie them 100 in a bundle with a string or rope. I then dig a trench six inches deeper than the size of the bundle, put the big end lower, and cover them up, leaving about five or six weeks.

After this time, I take them out and plant in nursery rows, soaking them with large quantities of water. It is very important that they receive a great deal of water; I never let them go very long without. I plant them quite close together in the rows. I consider the water the most important consideration.—W. K. Hammond, Woodlake, Cal.

Farm Life vs. City Life

MANY things can change one's point of view. This frank personol sketch by a back-to-the-lander, who acquired a new idea as to the city he had left and discovered in the country a charm which, through constant familiarity, is obscured to many of those accustomed to rural life, merely emphasizes Longfellow's assertion that "things are not what they seem," and offers just one explanation why the tiller of the soil is the reol "salt of the earth."

By D. J. Whitney

"THAT was a funny looking lot of people," said my city friend, as we left a splendid poultry meeting to which I had taken him. I was thunderstruck by his remark; yet a few months before my viewpoint and his had been similar.

I had left the meeting filled with enthusiasm over the fine discussions, and much better informed than when I had entered. I had given little heed to the people about me except subconsciously to think that they were a fine lot, happy, sincere and good to look at. True, their pleasing appearance was not due to faultless tailoring and starched collars; most of them wore clothing which, although neat, was not too elaborate to wear in doing light chores on the return home, and nearly all of them wore soft shirts and collars. But their tanned and toughened complexions were clear, their eyes bright, their step elastic.

It was then that I realized what a change had come about in myself; not long ago, I probably would have agreed with my companion, but now his thoughtless remark stood out like a bold landmark to designate the point where my train of thought had switched to another track. So complete had been this change that after I had spent months at a time in the country and in small towns, the inhabitants of the city began to look strange to me. Upon visiting my old haunts, I caught myself mentally remarking upon the deficiencies of those about me.

One of the first men whom I particularly noticed was a very well dressed gentleman whose skin seemed to be as white and soft as his shirt, whose waist was somewhat larger round than his chest, and whose muscles were soft and flabby. His face was about in keeping with his physical make up. "That is a pale, soft, delicate looking man," I thought, but later when a number of other similar individuals appeared I began to realize that they were nothing more or less than typical office workers and city dwellers. They looked queer because they were new and to me, unusual. There is a real difference between city folks and country folks, it is true, but which, after all is the type that "looks funny?"

Some time later I drove up to Fresno and called at the headquarters of a large concern. The main office contained a number of well dressed young men, but the impression they made was that a good strong push would bowl a whole row of them over, and by the same token, they seemed to be lacking in spirit as well as in body. No one can now make me believe that it is not far better to have a skin and complexion purified by open air and sunshine, than a skin made soft by indulgent living and indoor habits; that it is not better to have firm, active muscles than muscles which are spread apart and softened by layers of fat and lack of use; nor that it is not better to have the nature and disposition which appears to go along with farm life than the nature which seems to develop with life in the city.

One cannot help gaining the impression that the farmer is self-reliant,

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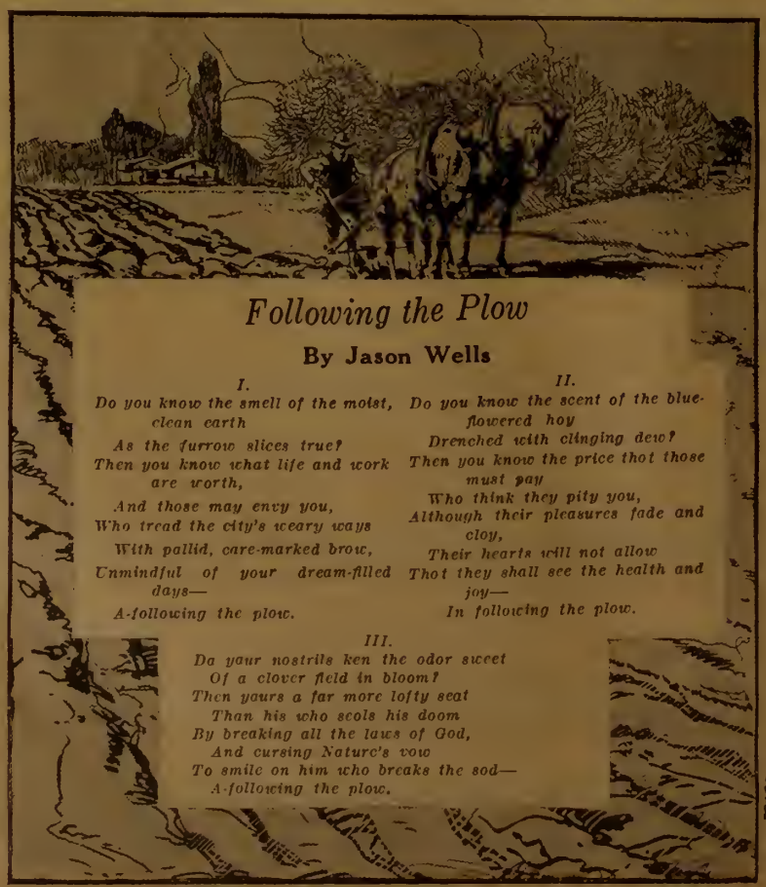

Following the Plow

By Jason Wells

I.

Do you know the smell of the moist, clean earth
As the furrow slices true?
Then you know what life and work are worth,
And those may envy you,
Who tread the city's weary ways
With pallid, care-marked brow,
Unmindful of your dream-filled days—
A-following the plow.

II.

Do you know the scent of the blue-flowered hay
Drenched with clinging dew?
Then you know the price that those must pay
Who think they pity you,
Although their pleasures fade and cloy,
Their hearts will not allow
That they shall see the health and joy—
In following the plow.

III.

Do your nostrils ken the odor sweet
Of a clover field in bloom?
Then yours a far more lofty seat
Than his who seals his doom
By breaking all the laws of God,
And cursing Nature's vow
To smile on him who breaks the sod—
A-following the plow.

Death on Rabbits

Co-operation Wins

SALT LAKE CITY (Utah) hunters make pilgrimages every year to the near-by farming districts to help the farmers rid their fields of jack rabbits and at the same time enjoy a day's sport. By a co-operative arrangement, the farmers get together and prepare a big lunch for the city sportsmen, many of them joining also in the "drive."

Everybody Satisfied

The day's haul, which is always a large one, is distributed free to the city's poor for meat and thus the happy triangle is completed. The farmer is assisted in getting rid of one of his worst pests; the city man enjoys a healthful day's sport, which is also, as is so seldom the case, really productive, and the poor of the city are furnished with large quantities of free meat. Other localities have taken up the idea with great success.

Startling Figures

Fully 200,000,000 wild rabbits are killed in the United States every year according to estimates made by the Biological Survey of the United States Department of Agriculture. Many of them are jack rabbits, the majority of which have not been utilized in the past. If all the rabbits killed were consumed, they would represent between 200,000 and 300,000 tons of valuable food, and if proper measures were taken to insure the collection of skins, these alone would have a value of several millions of dollars.

If a Rattlesnake Bites You

First, shut off the flow of blood towards the body to prevent the venom attaining access to the general system. Second, enlarge the puncture with a sharp knife and endeavor to drain away the surrounding poisoned blood. Incisions slightly deeper than those made by the fangs should be made directly across the primary wound and about an inch in length. The flow of blood should be hastened by the suction of the mouth. Third, wash out the wound thoroughly with a strong solution of permanganate of potash.

While these precautions are being taken, send for a good doctor. After the wound has been thoroughly washed and bled, the ligature should be loosened slowly and bleeding from the wound again stimulated as the blood is allowed to circulate in the wounded part.

Whisky may be given in frequent, small doses, to stimulate the heart and combat the paralyzing action of the venom. In large doses it benumbs, reducing the system to a condition most susceptible to the action of the poison. In a great many deaths from rattlesnake bites, so called, the symptoms of alcoholic poisoning have been more pronounced than those of snake bite.

This important fact should be understood, that an arm or leg bitten by a poisonous snake is very susceptible to common blood poisoning, owing to the deadening effect which the venom produces upon the organisms in the blood that combat [illegible] life.—Alfred Westfall

Many Voters Will Base Their Decisions Upon the Result of This Debate

WOULD SINGLE TAX AID OR INJURE THE LAND OWNER?

Vivid Presentation of Each Side of the Great Question by the Leaders of the Two Armies of Voters Who Are For and Against the Amendment.

Farmers Would Lose Their Land

BY ALBERT E. KERN,

President Anti-Single Tax Association of California

THE Single Tax amendment, which has been designated as No. 19 on the ballot for the November election, provides that "On and after January 1, 1919, all public revenues, State, county, municipal and district, shall be raised by taxation of the value of land irrespective of improvements thereon"; it then provides that the present provision of the constitution affecting taxation upon colleges, churches, etc., shall not be affected.

The total amount paid today in taxes for State, county and municipal support is the sum of $135,729,961, but this does not include receipts from licenses, etc., which, if added to the above figure, will make the stupendous sum of one hundred and eighty-seven million dollars, which is paid annually by the taxpayers of California for the support of their government. This vast sum of money is at present derived from many sources. The entire expense of the State government is borne by license fees and taxes upon the public service corporations, based upon their earnings. The counties tax not only the land, but all personal property, and a considerable sum is realized from licenses, etc.

In 1917 the total assessed value of all property in California amounted to $3,176,466,974, exclusive of the value of operative property of public service corporations Of this grand total, $1,860,936,460 represents the assessed value of all land in California. The proposed amendment will exempt from all taxation property aggregating $1,315,503,514 in value, which is now paying its just portion of the expense of government.

Effect on Farmer

Now let us see how the farmer will be affected by this change. It has been argued that the farmer will profit greatly for the reason that all of his buildings, improvements, machinery and livestock will be exempted from all taxes and because these things constitute a great portion of his possessions. We regret that we have not the figures up to date, but the ratio shown by the report of 1910 will probably hold good today. In 1910 the total farm land value in California was $1,317,195,448; the value of farm buildings, $133,406,040; implements and machinery, $36,493,158; livestock, $127,599,938, making a total farm value, including land, buildings, implements and machinery and livestock of $1,614,694,584.

You will see from the above that had Single Tax been in effect in 1910, the farmer would have been called upon to pay taxes upon $1,317,195,448, while his total exemption would have amounted to only $297,499,136. The foregoing figures prove conclusively our contention that the great value in farming communities today is in the land, and not in the improvements. The great value of the property which the single taxers would exempt lies in the cities, where we find the greatest improvements. The total exemptions being almost one-half of the present total assessed valuation in the State, the land of the farmer would be called upon to pay its proportion necessary for State, county and municipal support. This would more than double the tax upon land.

Owner Would Lose

But this is exactly what the advocates of this measure desire to bring about. They realize that the man who is not making the best use of his land will be eventually wiped out and the unfortunate farmer who has a mortgage will immediately perish. This will mean that the property will be ultimately sold to the State for taxes, thereby absorbing what they are pleased to call the "rental value," and all of us will become tenants of the State. The proponents of this measure are the followers of Henry George, who states that "private property in land is a bold, bare, enormous wrong, like that of chattel slavery." By a process of reasoning satisfactory to themselves, the advocates of this measure have reached the conclusion that it is as immoral to own land, an inert thing, as it is to own human beings! They say the value of land should therefore be taken for the public use. How? By compensating the present owners as the owners of a water works or street railway are compensated when the public takes their property? No; they propose through this amendment to levy a tax equal to the whole earning power of

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Every Man Would Have a Chance

BY LUKE NORTH,

Vice President of the National Great Adventure for Single Tax.

SINGLE TAX, though of world-wide application, is of California origin. Henry George, its founder, left his native city, Philadelphia, when but eighteen, and sailed into San Francisco harbor in May, 1858, after a long voyage around the Horn. In San Francisco he was printer, editor, newswriter and founder of the Evening Post, and here he wrote "Progress and Poverty," which was destined to be one of the most widely read and translated books ever published.

It was here in California he saw the most rapid evolution of every stage of land monopoly which had developed in all Christendom in many centuries, everywhere bearing with it the startling, tragic paradox of increasing poverty with increasing wealth!

Nowhere, since the days of the great Mexican land grants, and later of the subsidies to the Pacific railroads of over 16,000,000 acres, has the origin and cause of widespread poverty been so clearly and directly traceable to land monopoly as in California. As early as 1860 "The Curse of California" was recognized as this private monopoly of the unused earth.

"Progress and Poverty" showed the way out; the simple, orderly, peaceful, harmonious way: a Single Tax on land values which would make it unprofitable to hold idle land; which would absorb into the public treasury the increase in land value due to increasing population, and untax the fruits of labor and industry; which would make labor and industry profitable, monopoly and speculation unprofitable, not taking away either the value or the possession of land that is used, but greatly lessening the tax burden thereon and making it easy for any citizen to procure and keep all the land he could personally occupy or profitably develop.

A Natural Development

No individual or class is particularly to blame for the tragedy of increasing poverty with increasing wealth. "We are caught in a great economic system which is heartless," says Woodrow Wilson, "because we have not adjusted our laws to the facts of the new order." Single Tax is the natural, indeed the only offered, adjustment of the land problem, and that President Wilson approves of such an adjustment is quite plainly indicated by the fact that he has taken into his official family several of the leading Single Taxers of the nation, men like former Congressman William Kent, now of the Tariff Commission, who although owning thousands of acres of idle land in California, recognizes the evil of the system and openly disbelieves in the morality or the utility of the fee simple title. He thinks no one should be allowed to own land except those who use it.

Of course anyone can call himself a Single Taxer who pleases, but by their deeds men are known. Mr. Kern quotes approvingly the dissenting views of a "prominent" lawyer's clerk in San Francisco who says the Land Values Taxation Amendment on the November ballot is not a Single Tax proposal. Against this I cite the intimate friends and associates of Henry George, the only two now living who are in San Francisco: Former Congressman and ex-Superior Judge James G. Maguire and P. J. Healy, one of the best known "Americana" bookmen in the United States. Both are actively engaged in the present campaign for the initial adoption of a "pure Single Tax proposal" in the State where Single Tax was born.

A Fair Issue

I will leave it to Mr. Kern, himself, as an honorable "foe," for whom I have considerable respect personally as to whether the Land Values Taxation Amendment on the November ballot is or is not a "fair and square" Single Tax (Henry George) proposal. And whether it is or not, it is the only land issue now before the California electorate.

Its meaning, its expressed intent is "to prevent the holding of land out of use for speculation and to apply the land values which the community creates to community purposes" It will change the plan of land holding from monopoly to use; from "grab-as-grab-can" to "take only what you can use." It means that the unused land and resources shall be left open to later comers. It will prevent the

(Continued on Page 30)

Our Single Tax Debate

THE Single Taxers polled over 260,000 votes in California in 1916 and assert that they will add 70,000 more at the next election and win the State. Do the farmers want taxes levied on land values alone?

Every voter wants to know the arguments for and against the single tax, so that he can act intelligently. Are you "in the dark?" If so, you should not miss a single number of Orchard and Farm containing this tremendously important debate on the question:

Would Single Tax Aid or Injure the Land Owner?

Luke North, vice president of the National Association known as "The Great Adventure for Single Tax" puts the case for the Henry George theorists and Albert E. Kern, president of the "Anti-Single Tax Association of California," replies. The debate will be concluded in the November issue. In this issue North answers Kern.

All voters, land owners and students of political economy will find the controversy highly interesting and educational. The facts set forth in this war of words are of vital importance to farmers throughout the State. Every land owner will, of course, be affected by the proposed Single Tax Amendment to the Constitution of California.

Here Is the Proposed Amendment

As it Would Appear on the Statutes.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

A new section to be known as Section 15 is hereby added to Article XIII of the Constitution, to read as follows:

On and after January 1, 1919, all public revenues, State, county, municipal and district, shall be raised by taxation of the value of land irrespective of improvements thereon; provided, that war veteran, college and church exemptions in Sections 1¼, 1½ and 1a, Article XIII of the Constitution, are not affected hereby.

The intent of this Single Tax amendment is to prevent the holding of land out of use for speculation and to apply the land values which the community creates to community purposes.

All constitutional provisions and laws in conflict herewith are hereby repealed.

Which Tractor Shall I Buy? An Easy Solution of a Perplexing Problem

FOR six days (September 17 to 2[illegible]) the farm tractor was in the limelight at Los Angeles, where more than forty machines were demonstrated by the Traction Engine and Implement Dealers' Association of Southern California. A large number of puzzled farmers found the answer to their questions at this show, and a great many sales were closed on the grounds

WITH most farmers the question is not now "Shall I own a tractor?' but rather "which tractor?" And no one will deny that it is an important problem, for success or failure in power farming may hinge upon its correct solution.

Weeks of study and conversation with dealers cannot answer the question as well as one day spent at a big tractor demonstration. That hundreds of farmers as well as dealers did make up their minds as to their preference, at the recent demonstration of the Traction Engine and Implement Dealers' Association of Southern California, is clearly indicated by the fact that the actual sales, according to President O. H. Stevens, exceeded $1,000,000. In addition to this accomplishment, the dealers developed enough interested "prospects" to keep them occupied for several months.

Helps the Buyers

"I've been studying this tractor question for weeks," one man was overheard to say, "and the two days I have spent at the demonstration have proved far more valuable than all of my previous investigation. During the first afternoon, I was able definitely to discard in my mind three machines which I had been seriously considering; on the other hand, I discovered unexpected virtues in two others of which I had so far taken little notice. I have bought a machine on the strength of what I saw and heard here, and I feel now that I have made the right decision."

This sums up, in the actual experience of a previously puzzled farmer, the tremendous educational value of the tractor demonstration. Already an important feature of agricultural life, it is undoubtedly destined to become every year a greater factor in food production. California has this year given splendid support to two big demonstrations, that of the California Tractor and Implement Association, held at Davis last April, and the more recent show staged by the southern organization. In addition, tractors have been featured at all the local fairs and the State fair. The attendance at the Los Angeles exhibition was estimated at about 150,000, while the automobiles actually parked and checked inside the grounds numbered 23,800. It is safe to say that over 500,000 California people already have observed and comared the work of the 1918 models at these public affairs.

Helps the Industry

The advertising value from the viewpoint of the dealers is tremendous. But a more important effect on the industry is the opportunity afforded the farmers to pick the machine which will give satisfaction, for a satisfied buyer is the greatest booster for any commodity.

Some of the outstanding features of the demonstration were (1) the large number of "crawler" or track-layer machines, (2) the good management, lack of confusion and closely followed schedule, (3) the large exhibits of farm machinery and the well-filled accessory tent, (4) the success with which the tractors tore up the hard, adobe soil.

It was generally agreed that any tractors which could pull their rated number of plows through the soil of this demonstration field would have no difficulty in working ordinary land. Some of the chunks which were plowed up were apparently as hard as stone, and weighed 50 pounds.

While considerable attention was required to keep the plows in good order in this hard ground the concerns which furnished the implements supplied service men who saw that no serious delays occurred.

Miscellaneous Mention

The largest tractor was of the 75 horsepower crawler type and the smallest was a new garden tractor, the invention of a California mechanic. This tiny machine is propelled by a single cylinder motorcycle engine, which pushes the plow or cultivator ahead of the wheel. It is patterned after the ordinary wheel hand hoe used by market gardeners.

A new power lift, two-disc plow was tried out with good success. It successfully tore up the heavy soil which other small disc plows could not handle unless weighted down. This implement, the invention of a San Jose manufacturer, is expected to achieve big sales when the power-lift feature has been somewhat simplified and perfected.

An efficient, moderately-priced, high speed feed cutter, driven by a tractor, was demonstrated by one of the implement dealers. A mixture of bean straw and alfalfa fed into the machine, was finely ground and blown into a small portable elevator for sacking. The machine is also capable of grinding grains and hard material. It is a departure from the usual burr type, having a series of knives, mounted on a cylinder. Selling for about $800, including elevator and sacker, this outfit seems to be filling a long felt want, and is enjoying especially large sales at this time when conservation of feed is so important.

As compared to previous demonstrations, more machines were equipped with air clarifiers, there was less overheating, and less engine trouble, in fact, it was not observed that any machine was stopped for engine repairs.

One popular "stunt" was to turn the tractors loose, with the steering wheels set in position, and let them run in a circle, either forward or backward.

Most of the tractors demonstrated their ability to use low-grade fuels.

The Day's Work

What amount of work will the tractor do in a day? This will, of course, depend entirely on conditions, but an average estimate based upon the performance of a universal type tractor on a number of different farms gives a good idea of what may be expected of the medium size, medium price machine on the ordinary ranch. It was found that the tractor would in 10 hours:

Plow 7 to 9 acres; disk 27 acres with a 7 foot tandem disc harrow; disc 38 acres with a 10 foot disc harrow; harrow 76 acres with a 20 foot peg tooth harrow; plant 22 acres with a two-row planter; plant 43 acres with a four-row planter; cultivate from 13 to 20 acres with a two-row cultivator; drill 35 acres with a 10 foot grain drill; harvest 25 acres with an 8 foot grain binder; harvest 10 acres with a corn binder; mow 25 acres with an 8 foot mower, rake 40 acres with a 12 foot rake, rake 25 acres with an 8 foot side delivery rake; load 12 acres of hay.

Painting the Tractor

Does it pay to give the tractor a coat of paint occasionally?

While many persons will ridicule the idea, fifteen out of sixteen tractor manufacturers to whom the question was put replied in the affirmative.

"To be sure it pays," they asserted. A tractor is originally painted not only for appearance but to protect the parts from rust. For the same reasons it should be kept painted."

While proper adjustment, housing and cleanliness are considered more important, a coat of paint occasionally shows personal pride in the appearance of the machine and, aside from lengthening the life by protection from the elements, holds up the trading or re-sale value. The expense of repainting every year is so small that every owner is justified in the expense. It makes a good rainy day job.

A good grade of engine enamel should be used on the parts subject to heat, while carriage paint or regular machinery paint may be used on the other parts. The use of ordinary barn paint on metal is quite certain to result in dissatisfaction.

SOME OF THE BIG TENTS. THE SMALLEST TRACTOR

HORSES WOULD NOT HAVE MADE MUCH HEADWAY HERE

Is It Good Patriotism to Attend War-Time Fairs and Livestock Shows?

UNCLE SAM says "Yes," and urges you to go. He is co-operating by sending Government exhibits. The State, county or local fair is recognized as one of the most important means of increasing the Nation's production. Whether you saw the State Fair or not, plan to attend one of the later exhibitions. Your time and money will be well spent.

1918 State Fair Is Now History

"A BIGGER and better 1919 State Fair" was being planned by the State Board of Agriculture under the leadership of President George C. Roeding even before the gates had closed upon the recent exhibition, held at Sacramento, August 31 to September 8.

Although one of the most comprehensive and interesting in point of exhibits of any California fairs, the 1918 show was somewhat disappointing in attendance. There were dark rumors to the effect that this was due to the treatment of visitors by the people of Sacramento in previous years, but such reports are passed up lightly by the officials, who ascribe the situation to war conditions, including shortage of labor, which prevented many of the usual visitors from leaving their work.

Although there was some criticism of the amusement features, and the officials are planning some improvement along this line for next year, an added interest was lent by the war-time features, including Government exhibits, soldiers' and sailors' drills, aviation "stunts," carrier pigeon flights and the music of the service bands. Except for a few minor incidents, the occasion was one of pleasure, interest and education.

Autos Almost Dead

One interesting situation was the demise of the usually comprehensive automobile show. It developed, instead, into a very complete tractor and truck exhibition, with the interest centered on the former. The farm machinery exhibit was also excellent and well attended. A series of lectures on tractor care and operation was given in the machinery tent by Professor J. B. Davidson of the University and other experts.

Odds and Ends

Other interesting features were an auction sale, conducted for the benefit of the Red Cross, moving pictures and song-fests under the auspices of the California Tractor and Implement Association, lectures on food conservation, contests for "better babies," drills by the boys from Mare Island Navy Yard, wild-west contests, a circus, fireworks, dancing, a children's story-teller and races.

The cornerstone of the new Agricultural Building was laid by Governor Stephens.

The Japanese exhibits were exceptionally interesting and complete. The little brown people were featured during one day and attended in crowds. The exhibit of their truck and flower garden products was well chosen and arranged, and represented considerable expense. There was a special "better babies" contest for the Japanese mothers, which was well patronized.

Interested visitors spent many hours seeing and learning at the University (Davis) Farm School exhibit, which was very complete.

Big Stock Show

While the county and State horticultural and agricultural exhibits were comprehensive, by far the outstanding feature of the fair was the livestock show in which over $40,000 in cash prizes was offered. A large attendance of breeders was assured, in advance, not only by the comprehensive entries, but by the various meetings which were held throughout the week. The California Shorthorn Breeders' Association, The Western Duroc-Jersey Association, The California Holstein-Friesian Association, The California Swine Breeders' Association, The Western Berkshire Congress, and the California Cattlemen's Association all held enthusiastic meetings.

Ayrshires Featured

One of the surprises of the show was the Ayrshire exhibit, which attracted considerable attention. A large increase in the showing of this breed was noted. Both grand championships were won by E. B. McFarland of San Mateo.

"Mary Pickford," a beautiful heifer, was one of the entries in the Dutch belted division and carried off a blue ribbon.

Honors in the Milking-Shorthorn division were divided between Alexander & Kellogg and George Murphy, the former of Suisan and the latter from Perkins.

A big feature of the livestock show was the appearance of the Congdon & Battles herd of Aberdeen-Angus cattle from Yakima, Washington. This herd is one of the most prominent representatives of the breed in the United States and undoubtedly ranks first on the Pacific Coast.

Boy Wins Honors

One of the sensations of the show was the big Chester White exhibit. The Grand Champion boar, shown by Highland Stock Farm, was sold for $1000 to Lee Bleakmore of Lakeport. Some of the older exhibitors received a jolt, when Hiram Hendern, a 14-year-old boy of Fair Oaks, received the ribbon for Grand Champion sow. This young exhibitor took, altogether, $180 in prize money.

Poultry Breeders Out

Following a hard season, due to feed shortage, the poultrymen made a good showing. Judge Robert V. Moore pronounced the exhibition one of the best, from standpoint of quality, that has ever been held in the State. The exhibit was featured by the large number of entries from Southern California. A Rhode Island Red cockerel, exhibited by G. W. Mears of Phoenix, Arizona, was pronounced the best representative of the breed ever shown in California. There was a fair showing of rabbits, the prize for the best display, all varieties, going to The Homestead Rabbitry, San Mateo.

"Until Next Year"

The 1918 State Fair may be summed up as a very well managed, interesting, educational war-time exhibition, where every visitor was constantly reminded of food conservation and greater production, and where the purebred farm animal was more firmly than ever placed on the throne as "King."

Working Together to Swat the Hun

Some of the Late Fall Events

THE California International Livestock Show, which will open its doors in San Francisco November 2nd, and continue until November 10, promises to fulfill all the expectations of those who have lent their aid and assistance in bringing about this new enterprise.

The premium lists, of which 10,000 have been published, are practically all distributed among the stockmen and breeders in many States. Those desiring new or additional copies can obtain same by addressing Joseph E. Painter, manager, 1205 Merchants' Exchange Bldg., San Francisco. Twenty-eight thousand dollars is offered in the various breeding classes, and about $10,000 will be offered in the night horse show classes.

A very fine exhibit of poultry and rabbits will be shown by the San Francisco Poultry Breeders' Association. These combined events create a new departure for the citizens of San Francisco and the public generally.

There will be exhibitors from many other Western States.

It is expected that the show will stimulate the breeding of livestock, and result in the use of some of California's idle acres for meat production.

A Clean Policy

The policy of this show is to permit the exhibition only of such animals as have breed type, individuality, finish and unquestionable quality to commend them. Individuals, even though registered, may lack development, finish and quality to a degree sufficient to render their exhibition impossible, as unworthy of the breed they represent. This class of animals has no place in an exhibition of this kind and is discreditable to both exhibitor and show.

The final date upon which all entries will close is Saturday, October 5th. Positively no entries will be accepted unless in the office of the manager Monday, October 7th, it has been announced.

The association back of the show is a non-profit-making organization, composed of some of the leading men of the State. It is hoped that the California International will become a permanent annual feature.

Sonoma County Fair

The Sonoma County Farm Bureau will hold a fair on October 11th and 12th, 1918, at Santa Rosa. This fair will be a departure from the ordinary exhibitions. Horse racing, public exhibitions of freaks and other concessions of a similar nature will be conspicuous by their absence. An attempt will be made to make the fair a success as an exposition of the rural life of Sonoma County and as an expression of the part Sonoma County farmers are to play in the agricultural war program for the coming season.

With this end in view the management will limit the affair to exhibits from the 19 farm centers in the county, a comprehensive exposition of the conservation and preservation of foods by the Farm Home Department, and exhibitions of livestock, poultry, pet stock and farm crops. Unusual efforts are being made to assure a comprehensive showing of farm implements and devices for saving labor in the home and about the farm.

Riverside's Plans

With the object of improving the agricultural, horticultural and livestock industries, the Southern California Fair came into existence. The directors of the former Riverside County Fair felt that they could better serve the interests for which it was founded in 1913 if the name were broadened as the fair has broadened since then. The 1918 fair will be held from October 8 to 12.

Governor Cantu of Lower California is now selecting exhibits for the big fair to show what can be produced south of the border. From the fertile Coachella Valley will come a collection of dates, while the Palo Verde country will be represented with a large and varied cotton display. Few fairs in the world have such a wide variety of products as are annually displayed at Riverside.

The Fresno Fair

Although always agricultural in its nature, the Fresno District Fair this year will feature above everything else exhibits of agricultural machinery and products. The fair will take place from October 1 to 5, inclusive.

The co-operation of the Government has resulted in the bringing together of exhibits, which in both quantity and quality, will surpass anything of the kind ever before shown at the Fresno fair.

The fruit industry, the principal agricultural pursuit in the vicinity of Fresno, will be better represented than ever before. Several towns, which in previous years have made general exhibits only, are this year specializing in the particular fruits for which their localities are best known. For instance, Sanger is preparing a special shipping grape exhibit; Selma is to show a complete exhibit of all kinds of green, dried and canning peaches; Clovis will have a fig exhibit.

Ventura County Fair

The Fourth Annual Ventura County Fair, which will be held at Seaside Park, Ventura, from October 2 to 5, inclusive, promises to be the best exhibition ever featured in that county. The premium list is very complete, including not only all classes of livestock, but farm products, poultry, pet stock and oils and machinery.

The Liberty Fair

An account of the plans for the Los Angeles Liberty Fair, to be held at Exposition Park, October 12 to 26, will be found on Page 9. It is anticipated that this event will crystallize into a permanent annual Southern California State Fair.

Feeding Crop With Crop—Raise Your Own Fertilizer

"Commercial fertilizer is scarce and expensive. Will green manuring solve my fertility problems?" This article answers the question and tells why, when and how. Now is the time to plant green manure crops.

By Robert W. Hodgson

"THERE is nothing new under the sun." From the recent agitation regarding the use of winter cover crops in California as green manures many people have been led to believe that the practice was something new in agriculture. This is far from the case. From time immemorial the turning under of a green crop to supply organic matter to the soil has been a common agricultural practice. Such available records as we have show that the use of beans, vetches and lupines for such a purpose was well understood by the Romans, who probably borrowed the practice from nations of still greater antiquity. Certain it is that the Chinese have recognized the soil building qualities of the soy bean and other legumes for thousands of years. The art of using green manure crops was lost during the dark ages, but in the seventeenth century, as the modern era dawned with the revival of agriculture, came the rediscovery of the value of the green manure crop and particularly the legume.

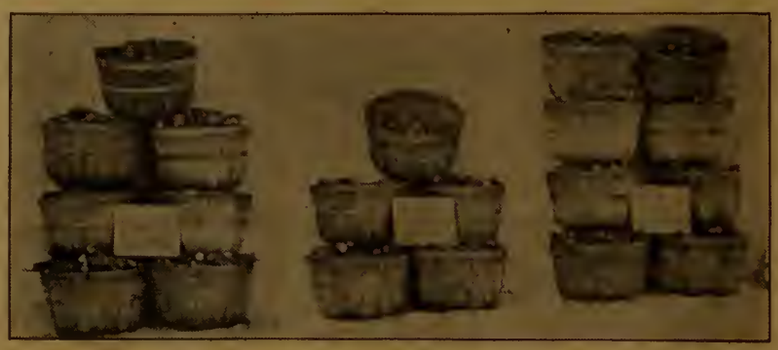
The subject of green manuring is especially timely at present because this is the season to plant such crops and for the additional reason that the Food Administration has prohibited the use of bean straw, hay and other sources of organic matter as fertilizer. Therefore the planting of a green manure crop is the farmer's only means of obtaining organic matter, except the application of animal manures. This latter is, of course, impossible in many cases since the supply is much below the demand.

California Not Exempt

It has always been the history of an agricultural country that while land was cheap and plentiful, wasteful farming was the rule and little attempt was made to conserve soil fertility. With the gradual exhaustion of the original reserve of fertility in our soils, however, has come a recognition of the green manure crop as an important factor in maintaining our agriculture up on a permanent basis. Although farmed for a much shorter period of time than our eastern soils, the lands of the arid west already present the problem of fertility maintenance. Conditions in these drier sections are such that organic matter, which in a broad sense means fertility, is rapidly lost. The intense summer heat and dryness, together with the frequent stirring of the soil in order to conserve the moisture, provide excellent conditions for the burning out of the organic matter from our soils. A few years of such loss without the addition of any outside material suffices materially to decrease the cropping power and, therefore, the agricultural value of our soils.

Agriculture in the west is largely of the specialized type, which means that there cannot be the proper balance between the number of animals kept and the crops grown. With us the average farmer may specialize in cattle, or raise hogs; he is an orange grower, or he grows alfalfa. Rarely does he combine two or more lines of industry to give better balance to his business. Greater diversification is one of our crying needs. Specialized farming means an insufficiency of animal manures.

Our arid soils as a rule are plentifully supplied with the mineral elements necessary for plant life. We do not, as a rule, need the phosphates and potash used in humid climates. What we need is organic matter and nitrogen, and the former usually takes care of the latter. Therefore it became evident some years ago that some cheap method of adding organic matter to our soils other than by the addition of barnyard manure was absolutely necessary if the arid west was to be maintained as an agricultural country.



Left to right: Plat 10, barley plowed under and 108 pounds nitrate of soda added; Plat 12, barley plowed under, no fertilizer; Plat 13, bitter clover (melilotus indica) plowed under, no fertilizer.—From an official experiment.

Early Experiments

Remembering how thousands of acres of worn out lands in the eastern States had been reclaimed through the use of crimson clover, vetch, cowpeas and velvet beans, a few California farmers some ten years ago began to try out various green manure crops. Since it was the citrus men particularly who were experiencing difficulty in obtaining manure and who, therefore, commenced the use of green manure crops in this State on a large scale, the practice has come to be linked inseparately with good citrus growing. Our rains come in the winter and irrigation water is expensive. Therefore, the emphasis has been on winter cover crops to be turned under in the spring at the regular plowing season rather than the summer cover crop of the east and south.

What Green Manure Does

The incorporation of green material with the soil has two distinct effects; one direct, and resulting from the addition to the soil of certain ingredients contained in the green manure crop; another indirect, and resulting from the improvement of the physical condition of the soil through the addition of organic matter. The addition to the soil of mineral elements necessary to plant metabolism, or food-assimilation, is greatly augmented if the green manure crop is a legume, for then there is added a large amount of nitrogen which has been "fixed" (or absorbed) from the atmosphere. It has been estimated by various soil experts that about 50 pounds of nitrogen per ton of green matter is returned to the soil when a leguminous green-manure crop is turned under. With an average of ten tons per acre returned to the soil through the use of a green manure crop there would be added the equivalent of some 500 pounds of nitrogen. Even if but one-fifth of the amount were added, it would represent an application of 500 pounds of sulphate of ammonia per acre. At present market prices this would cost in the neighborhood of $40.

The organic matter added by green manure crops is active organic matter and decomposes readily, thus adding to the humus content of the soil, furnishing food for beneficial bacteria in the soil, and tending to provide more favorable conditions for their activity. Of course the addition of organic matter of any kind aids in improving the physical condition of the soil and increases its aeration and water-holding capacity. But a particular function of active organic matter is that in its decomposition it increases the amounts of mineral elements available for plant use, in addition to actually adding nitrogen taken from the air. Thus the turning under of a green manure crop is quickly followed by an increase in the amounts of potash, phosphorus and other minerals used by the plant.

Green manure crops may also function as cover crops, absorbing nitrates and other very soluble plant foods precisely at the time when they are apt to be leached away by our winter rains. This is particularly true of the lighter soils where large amounts of soluble nitrogen salts are annually lost in the drainage water unless taken up by a cover crop. Besides this, green manure crops, especially those with long roots, tend to carry food up from the lower soil reaches which, when the crop is turned under, is available to the roots of the crop following. In addition they serve to prevent washing on hillside lands and in certain of the heavier soils aid in puncturing the plowsole which is apt to be formed.

What Crops to Use

Ten years' experience in California has shown that the melilotus indica, a bitter clover indigenous to Southern California, is our best winter cover crop. It is a vigorous grower, has a wide adaptation, stands relatively cool weather, and is attacked by no serious pests. Moreover, seed is available at a reasonable cost. Next in importance comes common vetch, vicia sativa closely followed by Canada peas. These crops have larger seeds, making them easier to grow on gravelly soils, but both are attacked by aphis; vetch serves also as a host to the cottony mold fungus. Other crops which have been grown are fenugreek, which is not well adapted to use in Southern California at least, burr clover and lentils. Crimson clover has never done well in California. Burr clover is used to a large extent in the northern and central parts of the State where it reseeds itself. It does not, however, make so large a tonnage as melilotus indica. Recently, considerable attention has been given to purple vetch as a green manure crop. It looks very promising, having shown an average yield of nearly twice the tonnage per acre of any of our other cover crops and having demonstrated its ability to make an early development. The only hindrance preventing its extensive use is lack of a sufficient supply of seed.

Send for This Bulletin

In a recent bulletin of the State Agricultural Experiment Station (No. 292) is given a summary of a series of experiments with green manure crops extending over a period of ten years. This bulletin constitutes one of the most valuable additions to our agricultural knowledge made in years and should be in the hands of every farmer. It discusses the subject from all angles and shows that leguminous green manure crops are markedly superior to non-legumes in California.

But green manures are not confined in their benefits to orchard crops. A series of experiments carried on over six years showed legume green manures to be markedly superior to non-legumes for field crops. The legume green manured plots showed the following increases in yields over the non-legume green manured plots: potatoes, 39 per cent; corn, 45 per cent; cabbage, 44 per cent; sugar beets, 43 per cent; sorghum, 25 per cent, and Sudan grass, 18 per cent. Legumes alone gave at least as good results as non-leguminous green-manure crops plus an annual application of 540 pounds per acre of nitrate of soda.

Since a big tonnage is desirable, the green manure crop should be planted early, not later than October 15th. Melilotus, being small seeded, may be handled very much like alfalfa. In orchards the common practice is to broadcast one-half the seed crossways, then drag it in lightly and furrow out, following by broadcasting the rest over the furrowed portion and then by irrigating. This generally gives a good stand. From 20 to 30 pounds of seed is sufficient. Early sowing usually requires irrigation to start the crop growing. In the more open porous soils drilling the seed in, or cultivating it in deeply will obtain a better stand. Vetch is usually sown at the rate of 70 to 80 pounds per acre.

Green manure crops should be turned under rather early while they are still succulent and easily decomposed. If this is not done, they may draw water out of the soil to the injury of the trees or to the crop following. Moreover, when woody, they are not so easily rotted. They should never be allowed to compete with orchard trees for water.

Orchards

The turning under of an average crow of melilotus indica has been shown to be equivalent to the use of a non-legume cover crop of the same tonnage plus the addition of between five and six hundred pounds of nitrate of soda per acre. The use of green manure crops in a citrus orchard for a period of ten years has shown a marked effect on the health and productivity of the trees. Green manuring resulted in a 30 per cent increase in size of tree and an increase in total yield at the age of ten years, of 68 per cent. Not only was more fruit produced, but the proportion of fancy and choice fruit was larger. In addition, there were 63 per cent more of the desirable sizes on the green manured plots. The trees on legume green-manured plots were superior in every way to those on non-legume green-manured plots.

Field Crops

The writer recently observed a striking instance of the value of green manures for annual and field crops. A farmer in the Burbank section has been in the habit of manuring his potato acreage. When he had about half covered it, applying the manure as thick as the spreader would work, he found he could not obtain any more material. He seeded the rest of the field to melilotus indica and turned it under in the spring, planting both parts of the field with the same seed at about the same time. He harvested an average of 115 sacks per acre from the green manured part and only 95 from the manured potatoes. He figured the cost of the manure at sixty dollars per acre and the green manure at ten dollars, leaving a difference in favor of the green manure of fifty dollars per acre. He plans hereafter to grow his own manure.

The Liberty Fair

Big Stock Show

CLOSE observation of the interested visitors and "hangers-on" in the livestock barns at any fair, reveals the fact that the majority of those who study the exhibits are not breeders and fanciers, but average farmers, eager to learn and apply the gospel of better stock, and noting closely the various types. Most of these men, no doubt, picture in their minds similar animals in their fields and barns, and many times there is born at such an exhibition that desire for the best which is sure to add another constructive breeder, and consequently a better citizen, to the constantly growing list.

Now that the big State Fair is over, most of the Southern California farmers and many from other sections are planning to declare a long enough holiday to take in the Liberty Fair at Exposition Park, Los Angeles, October 12 to 25. Although every department will contain splendid exhibits, especial interest is centered in the livestock section. Mr. C. R. Thomas, manager of the livestock department, has written especially for Orchard and Farm the following interesting outline of his plans and accomplishments:

AS the opening date of the California Liberty Fair draws nearer, more and more interest is being taken in the livestock department. The livestock breeders throughout the west are co-operating with the management to make it a grand success.

In order to encourage the breeding of better stock of all classes, many of the National and State livestock associations have added special cash premiums to the very liberal prizes offered by the fair association; these combined premiums amount to over $33,500. The prize money is attracting breeders, not only from California, but from several other States as well. Space in the barns has already been asked for by breeders from Oregon, Arizona, Nevada, Colorado and Texas. Additional inquiries have been received from Canada, Utah, Idaho and Washington, whose breeders will, no doubt, have exhibits on hand. The meat packers of Los Angeles are working as a unit to help the show, and by their generous donation, the largest prizes for car lots of both fat cattle and swine ever offered on the coast are to be awarded at the Liberty Fair.

To Hold Sales

The management has invited the various National and State organizations to hold public sales of their respective breeds, while the show is in progress, and some of these will avail themselves of the suggestion. These sales will afford buyers an opportunity to purchase the kind of sires and dams needed to improve their herds, without having to spend valuable time and much money traveling from ranch to ranch, or attempting to deal by mail.

A livestock show of the character offered by the Liberty Fair is an education within itself. The best animals of all the various breeds of horses, mules, cattle, hogs, goats and sheep will be on exhibition and many of them will change hands during the show. In fact a show of this kind is a common house for livestock. The buildings to house the stock are now nearly completed. The barns and stalls will all be new and everything that can be thought of for the comfort and convenience of the breeders will be furnished.

As head of the livestock department, I made a trip to the State Fair at Sacramento, where more than fifty of the exhibitors promised to bring their stock to the Liberty Fair. Present indications are that we will have to construct several more barns than were originally planned, in order to accomodate the entries.

Judges in all departments will be men of high character and ability; several of them are to be brought to the show from a great distanee, and at considerable expense. Exhibitors may rest assured that the merits of their animals will be passed upon by men who know.

The Government is encouraging the show to the extent that it will send a large exhibit from Washington to demonstrate methods of food conservation, production, etc.

You cannot possibly spend a week more pleasantly or to better advantage than by declaring a holiday and spending the time at the Liberty Fair. It is dedicated to the production of more and better meat and food of all kinds.

King of the Ring

FREE SHEEP BOOK

ONE of the most practical and interesting sheep-raising manuals issued in years is the attractive new 60-page booklet just issued by the Armour Farm Bureau, Chicago, Ill. It was prepared by R. J. H. De Loach, director of Armour's Bureau of Agricultural Research and Economics, and is a practical working manual, boiled down to the essentials, and designed to answer the questions of the novice in sheep-raising on the farm.

The marketing of surplus lambs is defended against the critics who contend that all lambs should be raised to maturity and made to yield one clip of wool before marketing. Many different classes of market lambs are described for the benefit of those who are disposed to cater to the growing taste for lamb meat and to reap the profits offered.

The various breeds are pictured and described, the advantages of each being set forth in an unprejudiced manner. A complete list of officers of the various breed associations and their addresses is given.

The book is printed in a large clear type on good paper and is elaborately illustrated with halftones and drawings. It is bound in heavy paper and of a size to exactly fit the coat pocket. Copies will be sent free to any one addressing a request to the Armour Farm Bureau, Stock Yards, Chicago.

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Regardless of whether you intend to plant this fall or next spring, we advise you to buy your seed now. Increasing demand means increased prices. Hairy Peruvian is rapidly displacing all other alfalfa varieties.

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Authorized Government Exhibits.
Big Livestock and Poultry Show.
AVIATION—HORSE RACES—SPORTS.
Plan to Remain Several Days.

Can the Horse Come Back?

By Wayne Dinsmore,

Secretary Percheron Society of America

On the Pacific Coast the demand for horses standing over 16.2 and weighing over 1700 pounds is in excess of the supply, but there is a surplus of smaller stuff. Fred H. Bixby of Long Beach, who has large ranches at seven different points on the coast, and who is well informed on the situation, says: "I am of the opinion that a great many of the former horse breeding companies of California have gone out of the business, but this last spring the horse business seems to have picked up, and a good many people are breeding again; I think that within a year or two the industry will again be in a flourishing condition.

Mules in Demand

"The mule market is improving rapidly. I am quite positive that within the next two or three years, regardless of the tractors and motor trucks, the horse and mule business will be back to its normal state.

"We find no trouble in disposing of our big horses and big mules, but the horses weighing from 1200 to 1400 pounds and the mules under 1000 pounds are poor sellers.

Prices Too High

"I am of the opinion that the owners of Percheron, Shire, Belgian or Clydesdale stallions could sell them now quite easily on the Pacific Coast, provided a reasonable price were asked for the animals. The day of the $3000 to $5000 draft stallion for use on grade mares seems to be over for at least the next 10 years. The stallion men will have to get down to earth if they want to do any business, but if prices become reasonable they will make plenty of sales."

Miller and Lux, who own 10,000 horses in California, believe that heavy draft horses will be in strong demand within a few years, and will bring high prices. Anticipating this, they are breeding every available mare (1800 to stallions and 700 to jacks) and intend to be prepared to reap the benefit of the probable demand.

In Utah and Colorado the best informed horsemen are of the same opinion. In every district visited there was a decided shortage of real drafters, and of foals, yearlings or two-year-olds that showed promise of developing into draft proportions. Many men reported that they were even now in the market for more big farm teams and could not find them.

The inclination to swing all attention to grain and meat production has unquestionably cut the breeding of heavy work horses and mules to a dangerously low level. We must not permit our reserves to fall away to a point where agricultural production will be impaired.

Guardian of the Flock

Although the Collie is generally regarded as the true "sheep dog," other breeds are used with good success by herders and farmers both in America and abroad. My grandmother, who is from Scotland, tells how shepherd pups were trained by the flockmasters in her native land.

The shepherd would take young puppies away from their mother and put them to a ewe which had lost her lamb. If the ewe was tied up for a few days, and some attention given the puppies at first, it was found that they soon learned where to get their meals, and as a rule the ewe would finally allow them to suckle. In this way the puppies became accustomed from birth to being with the sheep, and when able to run about would naturally stay with the flock. Soon they learned from the older dogs and the herder how to take care of the sheep, and as their strength and intelligence increased, became more and more valuable. The herders agreed that the time and patience required to get the puppies started on the right path was well repaid in the results.—Marion Kellick.

Starting With Sheep

If you have never raised sheep and are planning to add a flock, no matter how small, to your livestock, it will pay to make a thorough study of the subject, for sheep are not, as is too frequently supposed, "self-starting, self-raising scavengers." The following publications will be useful to any prospective wool grower:

Farm Sheep Raising for Beginners (Farmers' Bulletin 840); Sheep and Intensive Farming (Yearbook 1917; Separate 750); Breeds of Sheep for the Farm (Farmers' Bulletin 576); Equipment for Farm Sheep Raising (Farmers' Bulletin 810); The Sheep Tick and Its Eradication (Farmers' Bulletin 798); Sheep Scab (Farmers' Bulletin 713); The Sheep Killing Dog (Farmers' Bulletin 938). All the above may be obtained free of charge by writing to the United States Department of Agriculture, Washington, D. C. Library Leaflet Number 3 also issued by the Department, gives a list of recognized books on sheep-raising. The University of California also has for free distribution useful literature on this subject.

That soap weed, or Yucca, may be used for emergency stock feed when properly ground, is the contention of investigators who have been experimenting with it. A little cottonseed meal with ground Yucca makes a fairly well balanced ration which might be utilized to save thousands of cattle during drouth seasons in the southwest.

One of the best examples of success attending the use of purebred sires which has been revealed for a long time, is contained in the report of the accomplishments of a farm near Honolulu, Hawaii. By the use of purebred bulls, the weight of the steers produced on this farm was increased in a few years from an average of 449 pounds to 643 pounds.

The *"Jewels"* of a Tractor

IN your watch the delicate movement is fortified at vital wearing points with "jewels" of adamant hardness. WEAR, the enemy of all things mechanical, is thus foiled and accurate service perpetuated for many years.

In the modern tractor are wearing points as vital to its service as the "jewel points" in a delicate watch movement. These are the points where wear and abrasion attack first.

On many tractors AMSCO, "the toughest steel known," is being used to fortify these vital points. Due to its unusual physical characteristics AMSCO Manganese Steel is the most durable of all steels. It turns the teeth of abrasion. It defies wear.

As an instance of AMSCO wear-defying characteristics, gears and pinions of this metal are operated without oil.

AMSCO is today proving its remarkable durability on Crawler Tractors. It is being used for such vital parts as shoes, links, pins, grousers, lags, spacing blocks, sprockets and transmission gears.

On wheel tractors it is used for bull gears, pinions, sprockets and transmission gears.

These are the parts that should be carefully considered when you purchase a tractor. Upon them depends its service, its economy and the ultimate returns you will receive from your investment.

You cannot well determine for yourself that these "jewel points" are properly fortified. Your safest course is to select a tractor that specifies AMSCO Manganese Steel for the vital points.

We shall be glad to send you a list of AMSCO fortified tractors and a copy of the new issue of our "Tractor Parts Bulletin," if you write.

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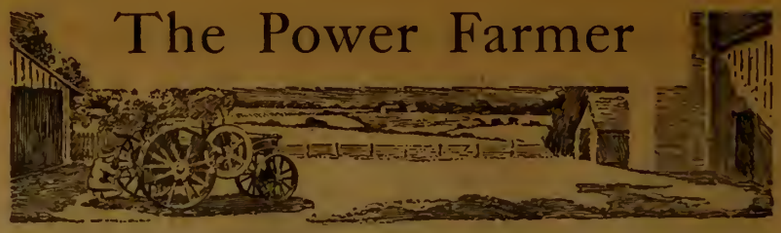
The Power Farmer



Prepared for Tractor

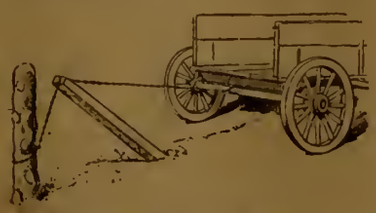
"You must be having a sort of outdoor housecleaning this fall," I said to my neighbor across the road, after seeing him at work for several days filling in ditches, tearing out brush, straightening fences, picking up stones and giving his fields a general renovation. "What's the big idea? Figure on selling the place, or did your daughter just return from art school and criticise the lay of the land and the location of the familiar landmarks?"

Because of the fact that we are old friends, he did not take exception to my sarcasm. He merely lighted his pipe and looked wise. "Goin' to buy a tractor," he said.

"I realize that it is a big event," I acknowledged, "but what is the nature of the beast that he is so particular about where he works? It is not as though your mother-in-law was coming for a visit. Why shine up the whole place in honor of the arrival of a new piece of machinery?"

And then he explained what to me was a new way of looking at this tractor proposition.

"My neighbors are all trying to figure out what kind of tractor is suitable for their places," he said. "I ordered a good medium-priced, all-around machine that I knew had made good, and now I'm fixing my farm up so it will be suitable for the tractor. I know that uneven ground, odd corners, stumps, stones, unnecessary fences and ditches would cause trouble and loss of time. I figured that it would pay me to hire a couple of extra men and let some of my other work go while I spent a week or ten days cleaning up the fields. Then



Clearing the Way

One method of "yanking out" those old fence posts.

when my machine is delivered, I can start right in and get my fall plowing done without so much delay. A tractor is expensive; I figure that it will pay to treat it right. I'll admit that I haven't much of an eye for the beautiful. My wife has talked for years about improving the general appearance of the place, but I had to see some money in it; now that I've started, it looks so much better, I believe I'll have a clean-up spell every year. It wouldn't be many years until every field would be in good shape, and in addition to saving time and repair bills I'll increase the value of the place. There's no question it would be easier to sell, if I ever want to get rid of it. Not a bad idea, what? I understand you're thinking of getting a tractor too."

"Yes," I replied. "Thought some of it, but been trying to figure out what type was best suited"—I was stopped by his smile. As I walked back to my own land, I thought to myself, "making the farm fit the tractor instead of the tractor fit the farm. There's something to that, all right, although a fellow has to pick out the right machine too."

As I reached the house the men were starting out after their noon rest to hitch up their teams. "Joe," I said, "you and Frank hitch onto the stone boat, and go out and haul rocks off of the south forty."

And that's how it started. And now the whole countryside looks better; every farm seems more prosperous. And it's all because we got the tractor fever.—Albert J. Mason.

Hillside Plowing

I have a very hilly farm. What type tractor would you advise me to buy?—Joseph Runion, Spokane, Washington.

By this question I presume you mean the crawler as compared to wheel type. While very few of the round-wheel manufacturers will admit that the crawler type has any advantages, scarcely any of them will recommend their own machines to work on steep hillsides. In fact a 15 per cent grade, especially if there is heavy soil, is considered about the limit of safety. The crawler type adherents, on the other hand, strongly advocate the use of their machines on hill land, and can point to many in successful operation where side-hill plowing and very steep grades are the rule.

Any type of tractor is affected by grade; that is, the power at the drawbar is reduced. It has been shown that a rise of one in 100 feet, or a one per cent grade, adds to the draft of the tractor one per cent of the weight of the tractor and plows. Thus a 4000 pound outfit, negotiating a 10 per cent grade, would be pulling the equal of an additional weight of 400 pounds.

It is easily seen, therefore, that due allowance must be made for reserve power by the rancher who expects to work on extremely hilly ground.

Most tractor gangs are so equipped that the wheel may be set to hold the plows on a side hill. It is not customary to use special side hill plows with tractors.

Rocks and Tractors

I have 160 acres under cultivation, part of which is very rocky. Should I attempt to work in the stony fields with a tractor? What effect would the stones have upon the efficiency of the machine?—D. J. W., Nevada.

While most manufacturers admit that some soils are impossible to handle with tractors, the various devices used to protect plow and tractor, such as spring or break-pin hitches, usually prevent injury in working among stones. It may generally be said that a tractor, driven by an experienced operator, may be used in any field not too stony to be worked with horses.

One manufacturer recommends the use of a special plow with independent beam, which will often work where a rigid beam plow is not practicable. This type of plow also has a narrow point, and a shorter share with more angularity. The "motor-plow," which has the plows hung under the machine, or the tractor which hitches directly to the plows, may be successfully used in stones, because of the possibility of watching the work, turning and backing.

The most satisfactory policy would be to remove the heavy stones as rapidly as possible; a few days used in picking up stones will probably prove to have been well spent. The tractor, with a strong steel cable, may be used to move boulders.

A machine which has variable speeds and no heavy fly-wheel to keep up the momentum is a little more easily managed in uneven ground

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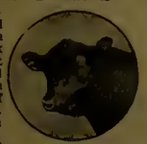
AT THE STATE FAIRS



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"Ask the man who owns some."

AMERICAN ABERDEEN-ANGUS BREEDERS' ASSOCIATION,
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SINGLE TAX

WHAT IT IS AND WHY WE URGE IT

By HENRY GEORGE

Other Single Tax literature to be had for the asking. LOS ANGELES, 203 Tajo Building, First and Broadway. SAN FRANCISCO, 948 Market Street, Room 611. Old and new friends always welcome.

"Practical Farming and Gardening" should be in the hands of every practical farmer. Special departments by authorities in their particular line are of vital importance to Western farmers. Note ad on another page of this issue.

What Is Overloading?

Overloading the tractor is generally admitted to be the surest means of shortening its life. Yet the tractor owner may overload his machine and not know it Here are some of the ways to tell when the requirements being made upon the machine are too heavy.

Rated speed is reduced and abnormal wear or breakage of parts is observed; motor labors or stops by choking down; motor constantly overheats even when cooling system is in good order; traction wheels slip badly. Other manifestations are slipping of clutch; increased fuel consumption, even though carburetor is properly adjusted and there are no leaks in the fuel line; bearing troubles; pounding of motor; noticeable decrease in amount of work accomplished.

Many a tractor has been looked over for mechanical difficulties when merely reducing the load would have obviated the trouble. Frequently, however, overloading is continued until it is too late and real difficulties become apparent.

The results of overloading are a great increase in upkeep and operating expense; bearing troubles, straining of shafts and other parts; leaky connections; breakage; short life.

One manufacturer has suggested finding the load that the tractor will pull with the throttle one-half open and never loading it above that point.

Overheating of Motor

My tractor motor constantly overheats. The belt seems to be tight and the water circulating freely. It seems to me I need a larger radiator. I also have trouble working in dust, as my machine is not equipped with an air clarifier. What type of clarifier do you consider best?—J. R B., Tulare county, Cal.

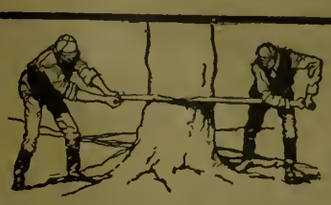
Many tractor owners who have cooling difficulties think that their machines need different radiators. This is seldom the case, however, as the manufacturers are now making such a large over-allowance that the tractors are supposed to work equally well without special equipment in any section of the United States. The trouble may be due to overloading or to the fact that the motor is improperly timed or running on a retarded spark which interferes with a proper combustion of fuel in the engine.

Clarifiers are of two different types: Water and centrifugal. Successful models of both kinds are now in regular use, and most of the 1918 model tractors are equipped with one form or another. There are arguments for and against both types, but it may be said that good success will generally be had with either. It would be better, however, to refer the problem to the manufacturers of the tractor, who will be best informed as to the type that will give satisfaction on your machine.

Tractor demonstrations and shows are now considered one of the most important features of the county and State fairs. A few years ago such demonstrations were classed with the balloon ascension and the "head-on-collision." Times do change!

Stumps and boulders occupy valuable land. Would the tractor be of assistance in removing them?

DISSTON SAWS AND TOOLS



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System in Shop, Office and Field—Helpful Hints for the Handy Man

An Effective Treatment for Sore Shoulders

On a ranch near here the owner adopted a simple means of curing a sore shoulder. One of his mules had developed a raw spot where the tug scraped the skin. This not only was painful for the mule, but was troublesome in cultivating, as he attempted continually to swing away from the offending tug in order to protect himself.

The hames, which were of the type having the tugs fastened on the side, were discarded and a new pair with the tug fasteners at the front, was put on the harness. Although the hook now stuck out away from the shoulder somewhat, a plug was put under it to make it project still more. Since the tug no longer touched the animal, the spot soon healed and in ten days there was no indication of the sore except a place about the size of a dollar where there was no hair.—D. J. W., Exeter, Cal.

Cure for Gum Disease

I have a sure cure for germ disease it is so cheap that I think every citrus grower should know about it.

First I clean off all bark colored with the gum and then I dust on wood ashes. I usually take a small can, such as a tobacco can, full of ashes and leave it at the foot of the tree, as it sometimes takes a second dusting to make a complete cure. Once I was obliged to apply it a third time, but have never failed in the results.—C. W. Blakesloe, Montebello, Cal.

Cost Sheets

A Washington ranch owner has a printed form which serves as a diary and is used in cost accounting. It consists of a ruled sheet with a space for each crop grown and each kind of labor in connection with livestock and improvement. Each evening the foreman fills out the sheet with the number of man, horse, or tractor hours applied to each class of work. The cost of such hours having been previously determined, it is a simple matter at the end of the month to enter up the amounts to be charged against the different departments.

Caring for Tools

The operator of a large ranch reduced costs and the loss of small tools by constructing a box, similar to that used by contractors, which was large enough to hold shovels, picks and crow bars, as well as fencing and carpenter's tools. This was fitted with four handles for lifting on and off the wagon, and a padlock for fastening the top. Instead of hauling the tools loose in the wagon box to and from the fields, the men left them out until the job was finished, the water-tight thief-proof box protecting its contents even though rain interfered and other work intervened.

Foiling the Rats

A corn-belt farmer discovered an unusual and simple method of keeping rats away from sacked grain stored in his barn. He purchased some ordinary sticky fly-paper and spread it on the floor around the piles of sacks.

Whether the smell or appearance of the paper discouraged the rodents, or whether they gingerly stepped upon it and discovered its peculiar qualities, this ingenious farmer is not prepared to say, but he states that there is no doubt about the results.

Feeding the Straw

That very little straw will go to waste this winter is a foregone conclusion. The expense of baling, hauling and storing, however, constitutes a problem which has worried many a rancher. A method of handling straw which has been used with good success by one Northwestern farmer is of especial interest because of the great saving in expense, with only a small outlay for equipment.

He constructed a shed, consisting of heavy upright posts and a roof. Poles were fastened horizontally on the uprights, about 18 inches apart, from the ground to the roof, forming merely a framework for holding the straw, with a rain-tight roof overhead.

At threshing time, a heavy canvas is stretched over one side and the straw blown into the shed, the canvas

Easy to Build

preventing the straw from blowing through the poles at the back. One man inside the structure forks and tramps the straw.

In the winter the shed becomes a self-feeder. The cattle can reach between the poles on the sides, but cannot trample and spoil the straw. As they eat, the pile settles and fresh feed is constantly brought before them. In regions subject to strong winds or storms it would be advisable to close the side exposed to the prevailing winds.

Does Your Life Work Mean Anything to You?

¶ You farmers who have worked hard—and no one works harder—to get together your property, what does it mean to you?

¶ Your property—your farm and buildings, your crops, your stock, your farm implements and, too, your home—all of these represent years and years of work that you have done.

¶ Everything that you enjoy as the result of your work comes to you and stays with you because the heroic soldiers and sailors of Uncle Sam are standing between you and the bloodthirsty, murderous Hun.

¶ To keep the Hun away from you, Uncle Sam does not ask you to GIVE even a single penny. He simply asks you to LEND him your money at good interest and he guarantees on his word of honor—a word that has never been broken—to pay back every penny you lend.

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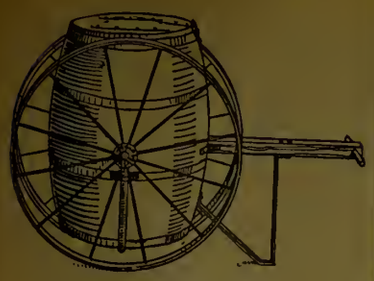
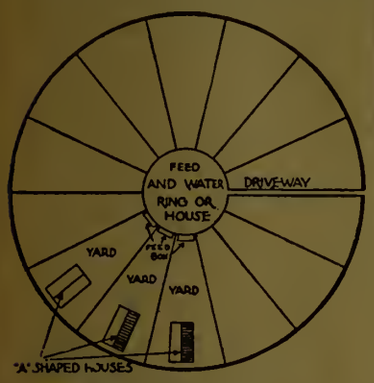
"Try Them on Your Hogs"



This Slop Barrel

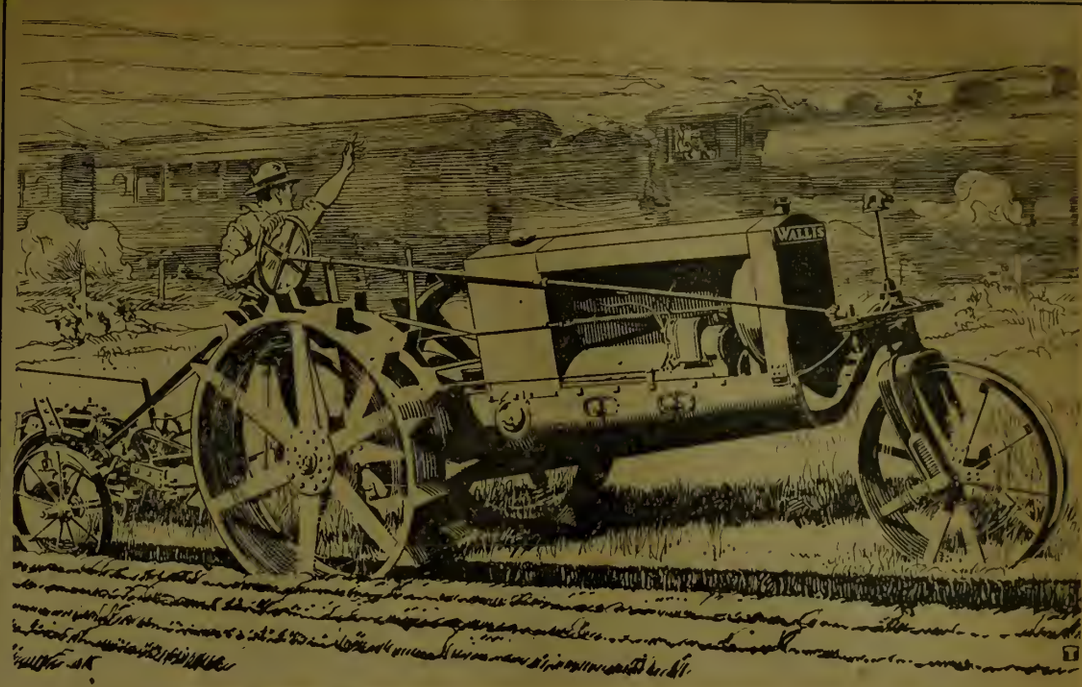
Which any handy-man can make, provides a convenient, closed receptacle for the garbage at the kitchen door and an easy means of delivering it to A. Pork and Family. Haven't you an old pair of cultivator wheels and a stout barrel about the place? Nuff said.



A Feeding System

Which is pronounced a great time-saver by the corn belt pork producer who worked it out, is here illustrated. By means of a driveway, feed is brought to the circular house at the center of the big ring. The feed troughs are placed at the end of each sector next to the center of the circle, and are therefore easily reached from the feed house. To supply the fourteen pens of hogs requires only about one-fourth the time and labor formerly expended. The animals are housed in "A"-shaped colony-houses, placed around the circumference as shown.

During the past five years 1684 inmates of the California State Prison, San Quentin, have availed themselves of the correspondence courses offered by the University of California College of Agriculture.



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The Wallis has completely enclosed gears, operating in oil. This includes the rear axle drive.

All gears are drop-forged, cut and hardened steel. Vital points operate on Hyatt bearings. Throughout this advanced type tractor every part is as carefully designed and finished as a modern motor car. As a result the Wallis does from 30% to 50% more plowing per gallon of fuel.

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PRACTICAL experience—the good, hard, commonsense kind—is unquestionably the farmer's chief asset, its value depending, of course, upon the personal qualifications of the man. This experience, together with a knowledge of the latest discoveries and experiments of the scientists and theorists makes a farming combination that's hard to beat. More and more farmers every year are taking advantage of the opportunity offered by the Farmers' Short Courses given by the State Universities, to broaden their knowledge and keep informed upon the latest methods. Following is a list of the courses which will be offered this fall by the University of California Farm School at the University Farm, Davis:

General Agriculture (including animal husbandry)	Oct. 1-Nov. 8
Horticulture	Oct. 1-Nov. 8
Poultry Husbandry	Oct. 1-Nov. 8
Dairy Manufactures	Oct. 1-Nov. 8
Market Milk Production	Nov. 11-22
Buttermaking	Nov. 11-21
Cheesemaking	Dec. 2-13
Milking Machine	Dec. 2-13
Beekeeping	Dec. 2-7
Gas Tractors	Nov. 11-22

All details concerning the courses, accommodations for visitors, and entrance requirements may be obtained from the DEAN OF THE UNIVERSITY FARM SCHOOL, DAVIS, CLIFORNIA. (The only cost with the exception of a small registration fee, is that of transportation, room and board.)

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A money-maker and hard work saver for land clearers and wood-cutting contractors. One man can move it from cut to cut. Simple and reliable. Hundreds in use all over the U. S. When not in use for wood cutting, the 4 H. P. motor will run mills, churns, pumps, etc.

Backed by a 53 year reputation and absolute guarantee.

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"I have sawed through five-foot solid oak logs at the rate of one foot a minute."—N. P. Myers, Laton, Calif.

America must burn more wood for fuel. One Wade will do 10 men's work at one-tenth the cost. Write for free Book, "How Dan Ross cuts 40 cords a day," full details and special price.

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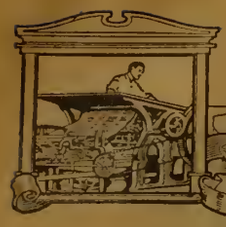
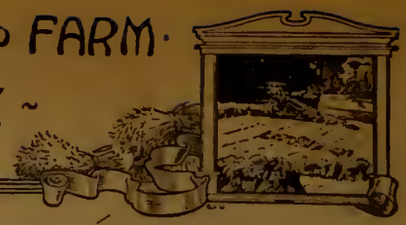


EDITORIAL DEPARTMENT OF ORCHARD AND FARM

~ TIMELY TOPICS AMONG FARM FOLK ~



J.C. Knollin, Editor

For Comfort in the Field

THE neighbors laughed when Pete Jones rigged up a swing-seat, covered with a thick sheep-pelt, on his sulky plow; they called him "soft" and predicted inevitable failure for a man who was so averse to taking hard knocks.

Pete, however, plugged right along on his padded throne and offered no explanation and no excuses At night he felt fresh enough to take off his plowshares and sharpen them; the flash of the forge could be seen through the shop door long after supper. He also attacked with vim the task of mending a split tug that probably would have broken the following day if the plow struck a tough piece of sod or a heavy, buried root. He tied a big umbrella over the seat the next morning, and passers-by almost doubled up with mirth; they also wondered how a fellow who was so tender could make so much money and attributed it to his "good luck"; meanwhile Jones went 'round and 'round his field, the plows turning up clean, straight furrows and the quiet, powerful horses, equipped with fly nets, walking steadily along. Someone remarked that Jones never seemed to carry a whip or yell at his teams and concluded it was because he was "so all-fired lazy."

At noon he was not seen for nearly two hours, and Bill Smith, who was driving by on his way back from town with some repairs for his binder, which had been out all the last winter and badly damaged by the rains, remarked to his wife that that fellow Jones never showed up in the fields after dinner, before two o'clock. He failed to recall the fact, however, that he had never gone by Jones' place early enough in the morning to find the fields empty. When Smith reached home, he had to call up the veterinarian in a hurry; one of his best horses had been overheated. He cursed his rotten luck and wondered how he would keep up with his work.

Pete Jones was what some people described as "easy going." He worked hard but never appeared to show it much; he sometimes took the longest way around as the shortest way to his destination. He put considerable stress on comfort when it looked like good business. He was never in a hurry, but always seemed to get there some way. He even found time to keep books and read a good deal. He put more money into household comforts than most of his neighbors deemed wise, but his wife was very strong and well and he seemed to think it paid.

And why not? Why not comfort on the farm? We are rapidly getting away from the old idea that farm life is necessarily one long series of hard knocks. It is largely lack of comfort that has been the cause of the exodus of our farm boys and girls. The old ways are going; old ideas are being forgotten; old theories exploded. California farmers probably lead those of the world in their plane of living. Yet there is still plenty of room for improvement—the kind of improvement that calls for the conversion of the hundreds of agencies with which the farmer comes in contact—the farm machinery manufacturers, for instance. Comfort has always been the last consideration in the design of a piece of farm machinery.. And this is reasonably so, for there were many more important items in the development of our modern implements; the utility idea had to come first. But now that the implements have been more or less standardized is it not an opportune time to consider the comfort of the operator?

The tractor manufacturers are getting around to it. The first tractors were patterned after the existing ideas of all farm implements; just as the first automobiles followed the principles of buggy and carriage design. Most of the tractor manufacturers have in the last two years, shown a tendency to consider to some extent appearance and comfort. Easily accessible and easily operated levers and pedals; more convenient steering gear; electric lights; self-starters; mufflers; enclosed driver's box—these are some of the developments. And yet almost without exception, the tractors are still equipped with the same old hard steel, corrugated, perforated, double-acting seat, mounted upon a single so-called "spring" which seems imbued with a constant desire to throw the driver sky-high or shake him loose from his lofty perch by sheer vibration.

It is bad enough to ride one of these seats all day on a slow-going mowing machine or plow, drawn by a team, but to stick to one on a tractor running three miles an hour over rough ground, with a 40 horsepower engine shaking the "boat" from stem to stem, requires the balance of an acrobat and the sticking qualities of a sand-burr.

Perhaps, one of these days, some tractor and implement manufacturer will announce a line of machinery equipped with padded swivel seats and foot rests. A strap on which to hang would make the city-bred "emergency" farm worker feel right at home, but a real honest-to-used-to-getting-up-at-four-a.m. farmer will welcome with a shout of joy the opportunity to ride over his fields in comfort.

In the meantime, we shall continue to tie a sack filled with needle-pointed straws, or an odoriferous sheep-pelt full of burrs to the iron saddle of the iron horse, wrap our legs around the responsive "spring" and—eat our meals from the mantel.

Our Editorial Policy—Farmers First

ORCHARD AND FARM is a magazine of, by and for agricultural people; standing by the food producer in all things; looking at life from his point of view. We recognize the proud position held by you who make your living from the soil. Your interests are our interests; your problems our problems; your struggles, ours.

To publish only that which is clean, helpful, interesting; to make the pages of this magazine a clearing house for useful ideas; to assist and entertain every member of the family; to deserve and keep the good will and respect of its readers—that is the policy of Orchard and Farm.

We Shall Not Swerve!

FRIENDS of the big Orchard and Farm family, the contributions and sacrifices which you, as members of the food-producing army of rural America, have made towards the winning of the war already stand as one of the most glorious achievements of our people. Your remarkable response to all appeals upon your time and money has won for you the respectful admiration of every true American. The oversubscription of your quotas in the first three liberty loans; your generous gifts to the Red Cross; your gallant response to the appeals of the War Savings committees—all these things stand out as landmarks along the road that leads to victory, and your sons and daughters and their sons and daughters will always look back with pride upon your accomplishments.

You, who have done your utmost to speed up the production of foodstuffs, in spite of the most discouraging difficulties, even in spite of an apparent lack of the co-operation which you felt that you could reasonably expect, shouldering without complaint the added burden which has been thrust upon you, need have no fear that your service will go unrewarded. Reward, in fact, is not asked nor sought by those who are entering, heart and soul, into the business of destroying the despicable Hun and pushing him over the brink into his own, self-made Hell. Such service is its own reward.

America is making good! America, in fact, has already astounded the entire world by her achievements. But the real sacrifice has only begun. Rather than stand back upon our accomplishments, let us, as enjoined by Clarence Ousley, Assistant Secretary of Agriculture, *"walk humbly in the presence of splendid and unconquerable France, of grim and uncomplaining Britain, of valiant and suffering Italy; and let us stand uncovered in the presence of Belgium, the bravest of all the sons and daughters of men, who gripped the Beast with her bare hands to give the world a breathing spell to assemble its hosts of defense."*

Our sacrifices, as compared to theirs, are like the prick of a pin compared to the wound of a shrapnel shell. We have only begun to give. Just as the inspired French people, battling with their backs to the wall, stopped the terrible onrush of the blood-thirsty invaders with the slogan, "they shall not pass," so we must forge always ahead, with the determination that "we shall not swerve"; shall not turn our faces from the duty which confronts us; shall not look back until the world is made safe for ourselves and posterity.

We are now commencing the Fourth Liberty Loan campaign. It is coming upon the heels of a wonderful harvest. There is scarcely a farmer in America who has sold his produce at a loss this year; on the other hand there are few who are making money as rapidly as some of those in other walks of life believe. But nobody can presume to deny that the business of agriculture is on a more stable basis, is more capable of expansion and has a clearer future than any other commercial activity! The officials in charge of the fourth loan are justified, both from past experience and from present economic conditions, in their belief that the agriculturists will again come generously forward and contribute more than their share of the six or eight billion dollars that is needed.

We say, "contribute"; yet it does not amount to that. It is merely the investment of your money in the soundest 4¼ per cent proposition that could possibly be presented to you. It is to be a "fighting campaign," this Fourth Liberty Loan drive. Our boys are fighting valiantly, gamely, unselfishly. The swelling casualty lists may already have included names of those near and dear to you. We are into the thick of the bloodiest turmoil the world has ever witnessed, and IT IS UP TO AMERICA TO FURNISH THE PUNCH THAT WILL WIN. The war has literally "come home" to hundreds of American farm homes where vacant chairs testify to the supreme sacrifice. It has "come home" also in plain evidence of Hun treachery and wanton destruction.

German agents have placed phosphorus in the grain fields; have scattered incendiary discs in the farmer's buildings; have cut down thousands of his fruit trees, poisoned his livestock, thrown rocks and bolts into his threshing machinery and in the West alone have done fifty million dollars' worth of damage, but the farmer is fighting all the harder.

No, the end is not yet. But the end is in sight, and when the tottering throne of the mad beast who controls the destinies of the German people finally crumbles and crashes to earth, to no class of people in America will more credit be due than to the patriots on the farms.

There is only one motto for all of us and that is "fight; fight to the finish," and part of the fight is to furnish the money that furnishes the boys who furnish the punch that will finish the Kaiser. We are confident that not a single reader of Orchard and Farm will have to be twice solicited to buy bonds of the Fourth Liberty Loan.

Sunflowers

A Hot Shot

THE secretary of a bar association on the coast was very busy and very cross one afternoon, when his telephone bell rang.

"Well, what is it?" he snapped.

"Is this the City Gas Works?" asked a woman's soft voice.

"No, madam," roared the secretary. "This is the Bar Association of the City of San Francisco."

"Ah," came from the lady's end in the sweetest of tones, "I didn't miss it so far, after all, did I?"

Too True!

Powder Manufacturer: Imagine Old Bill, of all people, going into the gunpowder shed with a lighted cigar I should have thought that would be the last thing he'd do.

Foreman: Well, sir, properly speaking, it was, sir.

A Poem of Potsdam

We've a substitute for butter
And a substitute for ham,
A substitute for pretzels
And a substitute for jam.

We've a substitute for leather
And a substitute for steel,
We've a substitute for rabbit
And a substitute for veal.

We've a substitute for metals
And a substitute for fruits;
Oh, if we had a substitute
For all these substitutes!

The Ford Must Have Hit a Hole in the Road

"Lost—One set of false teeth on the Smithville road, one-half mile above Clarksburg."—Smithville Courier.

His Letter Home

"These smoke barrages are awful! Sometimes the scenery is literally blotted from view by the choking, blinding fumes. There has been no exaggeration of the horrors of modern warfare!"

Natural History Notes

A giraffe thinks a badger has an awful short neck.

Even if a snake trips and falls, it doesn't hurt itself.

Sea lions learn to swim without the aid of water wings.

Clams are bitterly opposed to chowder parties.

A field mouse likes to play the outfield.

Potato bugs don't think much of peaches.

By whom, if you please, were hat-racks first invented?—Chippendale.

The first hat-rack was invented by a desperate man with nine unmarried daughters. He also invented the door-mat with "Welcome" on it.

"He is quite well-to-do, isn't he?"

"On the contrary, he is quite hard to do."

Styleplus Week the nation over

Copyright 1918 Henry Sonneborn & Co., Inc.

America's only known-priced clothes

Now going on—this Fall season exhibit—staged in every city and town where Styleplus Clothes are sold.

While thousands of Styleplus suits will be sold, the big object is to show the public what values we can produce by centering our volume on a few grades, thus permitting us to manufacture scientifically at low cost.

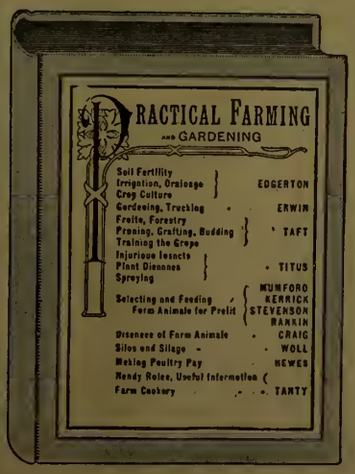
This season when clothing prices are *up* you can buy a Styleplus at a price never considered unreasonable for a good suit of clothes. The Styleplus plan of supplying reliable quality at known price helps you more than ever in times like these.

Wear Styleplus Clothes and you march in Uncle Sam's great thrift army because you make both sides of your dollar count. Visit a Styleplus Store during the coming week.

Sold by one leading clothing merchant in most cities and towns. Write us (Dept. AK) for Styleplus booklet and name of local dealer.

HENRY SONNEBORN & CO., INC. Founded 1849 Baltimore, Md.

VALUABLE AGRICULTURAL BOOKS



EDITED BY
WILLIS MACGERALD
BY AN EMINENT
ARRAY OF SPECIALISTS

For Progressive Farmers Making the Farm Pay

Money-Saving and Money-Making Methods

Throughout the text of this great book, the reader is given the results of scientific research, coupled with successful experience, by use of only such expressions as can be readily understood by those who have not had a scientific training. Thus any farmer with ambition to make the most of his labor and realize the greatest returns for his investment will find in this volume a priceless guide for everyday reference.

This work has been divided into departments, each covering subjects of vital importance, and each prepared by a specialist in his line, who has devoted his life of thought, study, experiment and practical experience to his special subject. The list of authors whose names are familiar to wide-awake farmers will be found on accompanying cut of book in connection with the subjects covered by each.

One Practical Idea Taken From This Book Worth Many Times the Cost of Entire Volume

It is needless to say that the advantages to be gained from a single practical idea, taken from any of these departments and put into practice, is worth many times the small expense incurred adopting the more approved methods.

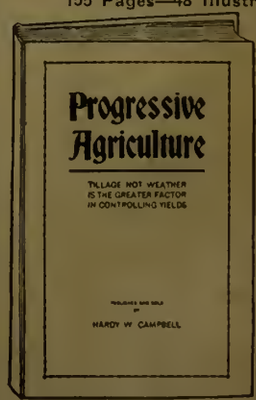
This volume consists of over 500 pages handsomely bound in cloth, size 8½ inches long, 6½ inches wide, richly illustrated on good book paper. 200 fine drawings and half tones with feeding chart in colors.

The book will be mailed postpaid, including three years' subscription (new or renewal) to Orchard and Farm, for $1.50. If after receiving Practical Farming you find it is not just as advertised, and you are not thoroughly convinced it is a wonderful bargain, return it at our expense and we will cheerfully refund your money.

Mail your order to Orchard and Farm, Los Angeles, Cal.

CAMPBELL'S Progressive Agriculture

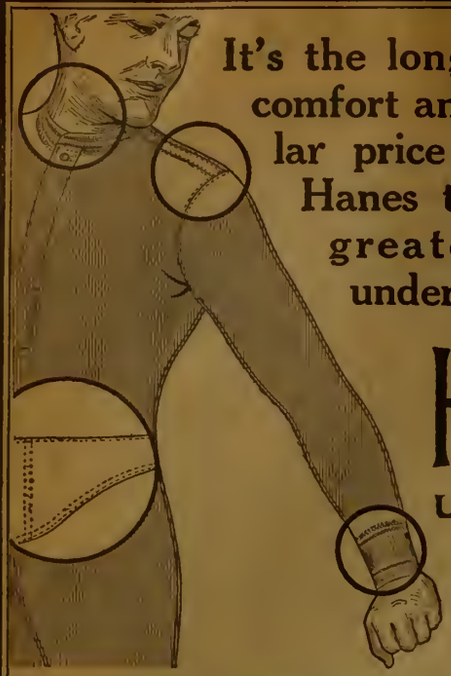
155 Pages—48 Illustrations.



THIS book contains nineteen chapters, each dealing with specific factors of vital importance in all crop-growing questions. The New Tillage idea clinches the certainty of successful farming, not only in dry seasons, but any and all years. The chapter on Fertility alone is worth many times the book's cost. The explanation of the effect of certain kinds of tillage one year on the next year's crop is one of the big features, and, last but by no means least, it proves beyond discussion that timely tillage will control yields in spite of droughty seasons.

This wonderful book is being offered, including a three years' subscription to ORCHARD AND FARM, for one dollar and twenty-five cents. Mail your order today to the address below and the book will be mailed postpaid by return mail. This offer applies to both old and new subscribers.

ORCHARD AND FARM
LOS ANGELES, CALIFORNIA



It's the long wear, the comfort and the popular price that make Hanes the Nation's greatest winter underwear.

HANES
ELASTIC KNIT
UNDERWEAR

GUARANTEE
We guarantee Hanes Underwear absolutely—every thread, stitch and button. We guarantee to return your money or give you a new garment if any seam breaks.

HANES quality, workmanship and comfort-fit in Heavy Winter Weight Shirts and Drawers and in Union Suits give unusual underwear value at a popular price! Read these wear and comfort features closely:

Guaranteed unbreakable seams; tailored collarette that snugs up to the neck, preventing gaps; shape-holding elastic shoulders that "give and take"; pearl buttons sewed on to stay! *Every desirable feature!*

Illustrated above are Hanes Heavy Winter Weight Shirts and Drawers, the Nation's standard at popular prices. Note the snug-fitting, three-button, staunch sateen waistband. Hanes Union Suits are also unusual in value, fit and comfort. *The closed crotch stays closed.*

Hanes for the boys! Hanes Winter Weight Union Suits for boys are the very limit of value—material, workmanship, warmth! They are the men's suits in boys' sizes. *Such value has never before been put into a boy's union suit!* You'll realize that as quick as you see one!

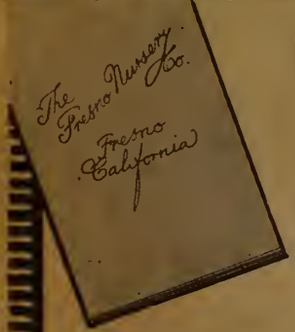
If your dealer does not have Hanes, write us at once.

This label on every garment
HANES
Buy none without it

P. H. Hanes Knitting Co., Winston-Salem, N. C.
New York Office, 366 Broadway

Warning to the Trade—Any garment offered as Hanes is a substitute unless it bears the "Hanes" label.

Send in Your Name



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Southern California Fair

AT RIVERSIDE
October 8-12, 1918
Authorized Government exhibits. Big livestock and poultry show, aviation, horse races, sports. Plan to remain several days.

A Simple Filing System

For Storing Information

WE find that a great many of the readers of Orchard and Farm are saving for future reference articles which will be of assistance to them in their farming operations. Different methods of filing information have been suggested. A Southern California subscriber, signing himself "C J D.," has developed a system which will no doubt be of interest to all the members of the big Orchard and Farm family.

"I used to cut out useful bits of information and leave the clippings about my desk or the living room table until my wife finally gathered them up and burned them as scraps," he writes, "but now I have it all at my finger tips and it is in such shape that it does not litter up the house."

Kinds of Material

He points out that the information collected by the agriculturist is usually in three forms: (1) clippings; (2) bulletins, circulars and catalogs; (3) books. The first two, therefore, present the problem of systematic filing. He has cases for the bulletins and catalogs, and a big transfer case for the clippings. The bulletin cases are of cardboard and are made especially to fit bulletins. He bought them for 15 cents each from a library and stationer's supply house. The transfer case is 24x12x12 inches, and is also of cardboard. He bought it "knocked down" from the same stationer for $2. It is divided into any desired number of compartments by means of a filing index. He also laid in a supply of light manilla cardboard, 10x14 inches (letter paper size). He pastes the clippings on these cardboards and files the sheets in the box edgewise.

In order to know just where to file each clipping and bulletin so that it may be readily found again, he has developed a system to be used on both the bulletin cases and the transfer box. Each division is designated by means of numbers. The number for "Citrus diseases" in his system, for instance, is 10. A bulletin on citrus canker would be filed in bulletin case labeled "10," and a clipping on the same subject in the transfer case in compartment "10." The cardboard is also marked "10" in the upper right-hand corner, so that it may readily be found and replaced. If desired, a note about the subject matter may be written under the number on the cardboard. For instance, "Citrus canker, cause and treatment." A list of the numbers, with the corresponding subjects opposite, is pasted on top of the transfer box.

Fits Your Business

This particular subscriber has a citrus grove and also breeds pure-bred fowl; his filing system is, therefore, so arranged as to cover many details in these two subjects. The beauty of a filing system of this kind, as will readily be seen, is that each individual may work it out to fit his own business. It can be made to cover every branch of agriculture in greatest detail, or a number of broad subjects in almost no detail. There may be departments and sub-departments. There is nothing complicated about it, and it offers a means of compiling in a very short while a really valuable reference library.

Judging the Value of a Farm Paper

"NOT by its appearance; not by the nature of its printing; not by the beauty of its arrangement, can an agricultural journal best be judged," writes Joseph Vance, a Washington subscriber. "Orchard and Farm excels all the other farm papers I receive in attractiveness of 'make up,' but best of all it reacts in a remarkable degree to the 'acid test' which I always apply to farm journals: How many articles which appear in its columns are worth clipping and saving? It is truly a paper that I can farm by."

Orchard and Farm is glad to have any of its readers apply this test to its columns. Are you filing the many "tips" published in every issue?

Farm Life Vs. City Life

Continued from Page 4)

with the knowledge and will to do what is to be done even if he has to leave the beaten path to accomplish his purpose. He, as a class, has the ability to think for himself and to act for himself; the ability to do without hesitating, those hard, disagreeable tasks which are all in a day's work. I am giving, of course, my impressions of both the average farmer and the average city dweller, having belonged to each class.

Clothes and the Man

Farmers must become accustomed to dust and dirt, and appearance is naturally a matter of minor importance when there is work to be done. Appearance on the other hand seems to be so sacred to the city dwellers that more important considerations are obscured It is an undeniable fact that thousands of typical city people think it is far better to be well dressed and behind a counter adding up figures or selling dry goods than to be acquiring muscle and grime in an iron works, even though they could be earning double the pay, using twice as much brains, employing six times as much skill, and climbing the ladder of success three times as fast as the man behind the counter.

Furthermore, I believe that as a result of city life the average man gets into a rut mentally. His work is practically the same every day; he often does not have to exert either mind or body to vary the routine. The farmer on the other hand is using both body and mind at all times on things a little different from those he has done the week before. The city dweller has not even "chores" to take the stiffness out of his joints. Food is prepared without any thought or exertion; cooking is done by gas; there is no wood to split, and no coal to carry. After office hours he reads the papers and magazines, or goes to the "movie" and so it goes day after day. Who is there among the Orchard and Farm family who has not felt that farm life was sometimes monotonous and allowed himself for a moment to become a little dissatisfied? Ah, my friends, it's just the other way! I've seen both sides and I know!

Silo Filling Time

Lest We Forget

Before filling is started, we are warned by past experience, the silo should be examined for openings in the walls where air might enter and spoil the silage, and for rough places which might prevent proper settling of the corn. The hoops on stave silos should be tightened sufficiently to close all cracks, but they should not be tight enough to buckle the staves. The staves will absorb some moisture from the silage and the hoops should be released somewhat a few days after the silo has been filled to prevent the swelling staves from buckling or breaking the hoops.

The walls of concrete silos should be inspected for cracks, sand pockets and rough places. If the surface of the wall has become roughened a thin coating of rich cement will make it smooth. Metal silos may be prevented from corroding by an application of paint.

A careful inspection of the cutter, engine and corn binder previous to starting work will sometimes save unnecessary stops and repair bills. All machinery should be put in good running order, and enough teams and wagons provided to keep the cutter running steadily. Ten or twelve men idle at one time rapidly increase the cost of operation.

The Cutting Stage

That cutting corn for the silo before it is ready is too general a practice, is a recognized fact. The full feeding value of the crop can not be obtained until the soft dough stage is reached. The lower leaves will then be dead, some of the husks will have turned brown, and the ears will be hard, but the stalks and upper leaves of the plants will still be green and succulent. Cutting before this time is like marketing cattle or hogs before they are finished.

Filling and Packing

A jointed distributing pipe for spreading the cut fodder inside the silo is very advisable. The stalks and leaves are evenly mixed, while if no pipe is used, the sections of stalk fall in one place and the leaves, being much lighter, in another.

Tramping and packing the silage as it is blown in can hardly be overdone. The surface of the fodder should be kept almost even, but slightly higher in the center than at the sides. The silage will then spread outward in settling, and keep tight against the walls, while if the fodder is packed higher next the wall and low in the center it will settle away from the wall and admit air, thus causing spoilage.

Sweet Sorghum

In cutting sweet sorghum for silage, the greatest danger is that of harvesting it too green. If it is cut before the grain is mature, it makes a very acid silage, which is unpalatable and of low feeding value. It should be allowed to stand until the leaves "fire up," and the stalks begin to turn yellow and are very sweet to the taste, and the grain is practically ripe.

The silage which results will then have a feeding value within one per cent of corn silage. No water need be added to the sweet sorghums as the stalks contain plenty of juice to make a good, air-tight pack even though the [illegible] and brown

The Farm Labor Army *de*creases as the National Army *in*creases

In spite of the labor shortage *more* food must be produced—*more* acreage must be put under cultivation. *More* work must be done by *fewer* men.

There is just one solution—machinery must fill the gaps in the ranks of farm labor.

Tractors must be used—thousands of them—tractors that will actually *do* the things you *want* a tractor to do—tractors that will work on practically *any* kind of ground—in *any* part of the country.

These are exacting demands but Cleveland tractors by the thousands are meeting them effectively.

They are producing food—in larger quantities than ever before—*and are consuming none of it.*

They are plowing 3½ miles an hour, eight to ten acres a day and under medium soil conditions are pulling two fourteen inch bottoms. This is equal to the work of three men and three good three-horse teams.

And the work is not only done faster but *better* with the Cleveland.

The Cleveland is an all-purpose tractor that does a wider range of work than is possible with other types. It is the tractor that works successfully on the side hill.

It plows, harrows, sows and reaps. It hauls, does grading and road work, cuts ensilage and does the hundred and one odd jobs which are always to be done about the farm.

It is tractor and stationary engine in one.

The Cleveland is built on the same principle as the giant battle "tanks." It crawls on its own tracks, laying them down and picking them up as it goes along. It will work practically anywhere—over rough ground, ditches and hummocks, close up to fence corners, and under small trees.

With 600 square inches of traction surface, it goes through sand, gravel, gumbo, mud and even wet clay. It travels over the newly plowed ground without packing the soil.

The Cleveland is only 96 inches long, 52 inches high and 50 inches wide. It can easily be operated by one man and can be housed in less space than is required for a single horse. It weighs less than 3200 pounds.

Yet in spite of its small size the Cleveland develops twelve horsepower at the drawbar and twenty at the pulley.

The Cleveland Tractor was designed by Rollin H. White, the well-known automobile engineer, and is built under his personal supervision. Only the best materials are used throughout. Tracks and gears are protected from dirt and dust, and the track sections are joined by hardened steel pins which have their bearings in hardened steel bushings.

Every farmer can fill up the gaps in the ranks of his farm labor *profitably*—can help the nation meet the food crisis *profitably*—by installing one or more Cleveland Tractors *now*.

Speed up *your* production. Make more money. Write us for complete information and the name of the nearest Cleveland dealer.

The Cleveland Tractor Co.

19081 Euclid Ave. **Cleveland, Ohio, U. S. A.**

The largest producer of crawler-type tractors in the world

Cleveland Tractor

Helping the Grape Grower

Confronted with the prospect of having no market for their product, as a result of the prohibition legislation, many California wine grape growers have viewed the situation with considerable discouragement. What seems to be a ray of hope is thrown upon the situation, however, by the recent announcement that the 250,000 tons of wine and table grapes, now worth $4,000,000, whose market will be cut off by war prohibition in 1919, if made into syrup would be equivalent to 40,000 tons of sugar of a present value of about $8,000,000. Investigations carried on by the State University have resulted in devising methods by which an excellent table and cooking, and even a fruit canning syrup may be made from these grapes with very slight changes in the present equipment of the wineries and sugar factories of California.

It is also proposed that by the co-operation of grape growers, wineries, sugar factories and canneries in the State, the wineries purchase the grapes during the vintage of 1919, extract and store 50,000,000 gallons of juice, the larger sugar factories to receive this juice during spring and summer, concentrate it, and ship the syrup to the canneries for utilization in 1920. If they used the major part of this syrup in the proportion of 25 to 50 per cent with sugar in most of their canning, and entirely with some fruits, the quality of their product, it is asserted, would in no way be lowered.

Repeating Shotguns and Rifles
for Shooting Right

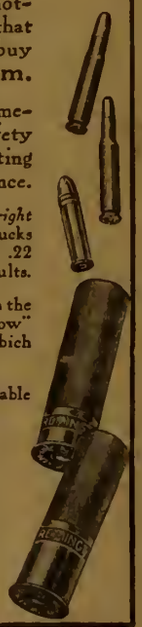
WHETHER .22 repeater for the boy or autoloading shotgun for yourself, a high power autoloading rifle for that well earned deer hunt or a pump gun or rifle for general use, buy a Remington UMC and know you are getting the *right* arm.

Every Remington UMC shotgun or rifle is *right* in every mechanical detail—hammerless, with solid breech, has positive safety lock and either autoloading or slide action. And *right* in shooting qualities, balance, fit, material, workmanship, finish and appearance.

Buy Remington UMC Shotshells or Metallic Cartridges and add the *right* finishing touch. For example, for squirrels, woodchucks and other small animals, the Remington UMC .22 cartridge with hollow point bullet gives best results.

The wonderful Wetproof process used exclusively in the manufacture of Remington UMC Smokeless "Arrow" and "Nitro Club" Shotshells, produces a shell which can be exposed to wet for hours without harm.

In *black powder* shotshells, buy the old reliable Remington UMC "New Club," now wetproof sealed at turnover (crimp) and top wad.



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Largest Manufacturers of Firearms and Ammunition in the World
WOOLWORTH BUILDING NEW YORK CITY

"Stop the Leaks and Save the Drops"
is the request of the Fuel Administration

OUR Country is facing a shortage of oil and gasoline so vital to our success in winning the war.

THE demand of the war industries, Navy and Emergency Fleet Corporation is exceeding the supply.

USE your automobile less and the **BIG RED CARS** more.

Frequent, Convenient Service

Pacific Electric Railway

O. A. SMITH, Gen. Pass. Agent
Los Angeles

New Zealand Red Rabbits
A Utility Breed of Proven Merit

Profitable!
This trio of New Zealands, at the age of three months, sold for $75. They were bred by C. McKee of Los Angeles.

ALTHOUGH some people consider the New Zealand Red rabbit a "fancy" breed, this strain is now extremely popular all over the country and is recognized as one of the best utility strains, in addition to being a delight to the fancier.

They may be made to weigh ten pounds when they are raised especially for meat production and not so much attention is paid to color; it seems to be very difficult, however, to breed the rich color that is required by the standard and at the same time put on the desired market weight. One reason for this is letting too many young nurse the doe. The novice is delighted with a litter of ten or twelve, but six should be the limit and four is even better, as when there are only a few to a litter, they naturally are larger and offer possibilities for the development of fine breeding or show animals. With small litters of good color it is often possible to make the best breeding stock weigh nine or ten pounds. The standard calls for ten pound does and nine pound bucks. The reason bucks were standardized at nine pounds was to help the fancier.

Fancier's Points

The color is described as rich, red buff all over the body, upper part of tail and front feet, with hind feet as red as possible. There should be a creamy undercolor and small eye-circle. It is usually impossible to get the heaviest weight in animals which conform to this standard.

Origin of Breed

The origin of the New Zealand Red, so far as is known by those who have made a study of the subject, is as follows: Years ago there was a reddish tan rabbit in Scotland, and several pairs were taken to New Zealand and turned out to forage for themselves; consequently they were much smaller than the New Zealand as we have it today and much lighter in color, with some dark "ticking" on the ears and sometimes a little on the back; this has been very difficult to breed off and is not yet entirely gone, as often a fine specimen will develop this, which we call a defect. They are supposed to have been brought to this country about ten years ago by a sailor who landed at San Francisco. They created so much favor that they were carefully handled and finally brought nearly to perfection as we see them today. Breeding them is an interesting and delightful hobby to the fancier and the utility qualities are unquestionable. In fact, the market part of the business is a profitable one as they are excellent mothers and the young grow quickly and evenly in size. The meat is fine grained, juicy and white. They are large enough to fry at eight to ten weeks, weighing three to four pounds alive, and one and one-fourth to two pounds dressed, according to the way they are fed and the number the doe has to nurse.

Beauty and Warmth
Illustrating some of the beautiful fur articles which Mrs. Richey has made from New Zealand rabbit skins.

New Zealand Fur

The fur of the pure standard-bred New Zealand makes handsome wraps and trimmings; making the furs is not hard work and is very interesting. The writer has earned quite a little pin money making up these furs herself and in the illustration one can see the many different articles that can be made with the fine skins. The lighter colored, less desirable skins can be used to line men's coats and vests and to make moccasins and rugs. The pelts are softer and more easily handled when the rabbits are about ten or eleven weeks old, just before they begin to shed their baby fur, or at four months when they have grown their adult fur. They should not be killed when shedding, if the fur is to be used as nothing can be done with them in that condition.

The more carefully the rabbits are skinned, the better will be the fur when the skins are tanned. One scarf, consisting of 12 skins from ten weeks old rabbits, made up very handsomely and brought the writer $15. The value is largely in the preparation of the furs, however. Good skins in the proper condition, stretched and dried, are valued at about 10 cents each, which of course is worth the trouble of caring for them as compared to burning or burying. Even if they are not stretched, they should always be spread in the shade. Unstretched skins, so handled, are at present worth four cents each.—Mrs. C. A. Richey, Los Angeles, Cal.

MONEY IN RABBITS
Read This Letter From One of Our Customers

Sept. 1, 1918.
H. E. Gibson Co.,
Arcadia, Calif.
Dear Sirs:
Last March I bought from you six Flemish Does and one Buck, for which I paid you $56.00, and I have now sold you back of their young eighteen, making $54.00. Yours very truly,
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MRS. DOTY still has on hand a large number of young rabbits. We buy back the young stock; all you can raise. Send stamp for particulars.
H. E. GIBSON CO. Arcadia, California.

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A. HART
86 Third St.,
San Francisco

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STANDARD OIL COMPANY
(California)
RED CROWN GASOLINE
The Gasoline of Quality

The Farm Poultry

Free or Confined?

TO the Editor of Orchard and Farm:

I notice that the Department of Agriculture is recommending that fowls be let out of the yard occasionally to range about the lawns or lots. I have also heard farmers argue that hens lay better when they have the free run of the place to pick up grain, bugs and scraps.

My experience is just to the contrary. I find that my hens lay better when I keep them locked up and on a diet which I can definitely prescribe. I think the reason for the small egg production of the average farm flock is largely this practice of giving them free range. There is so much feed scattered about the average farm that the hens soon get too fat, and everyone knows that they lay better when not over-fat. Hens want variety, and an occasional change of feed, however.

I give my chickens a big enough lot so that they can exercise, and always scatter their grain in deep litter so that they have to scratch for it. By feeding them green stuff out of the garden or sprouts and truck provided especially for them, and by giving them plenty of protein feed, such as beef scrap, and seeing that they always have charcoal, grit, oyster shell and bone meal, I believe that I secure better results than if the hens were allowed to roam at will. I raise and feed considerabe sunflower seed to supply oil.

I keep the hens hungry all the time, giving them just what grain they will clean up. With good fresh water they do not need anything more. They are never over-fat, and I get almost twice as many eggs as do my neighbors who allow their poultry to run at will. —R G. S., Yolo County, Cal.

Timely Poultry Tips

A subscriber from Santa Barbara sends in the following terse paragraphs obtained from an expert who does not believe in wasting words. "I understand he used to be a Lance Corporal in the Army," our reader says, "and we can therefore overlook his commanding ways. His own chickens look mighty fine, anyway."

As there seems to be some meat in his advice as well as on his chickens, here goes:

Chickens like variation in their diet.

Clean houses often, once or twice weekly. Daily is better. Begin now.

Disinfect with a solution of one of the standard disinfectants to kill germs.

Raise your own sunflower seeds. They are to the poultry what oilmeal is to livestock.

Don't put coffee grounds and burned matches in the kitchen scraps which go to the poultry-yard.

Nothing will bring down egg production more quickly than lack of sufficient clean drinking water.

Don't forget the charcoal, grit, oyster-shell and ground bone. They will return their cost many times over.

Discipline the dog! Every time he gets in the runs or chases the chickens, your egg yield is lowered. The production of hens is greatly influenced by the nervous system. Frightened, abused, highly excited birds never make egg records!

Watch the roosts closely for mites. Eliminate all chance of having them by painting roosts, roost supports and adjacent wood work with crude oil or a good disinfectant. Do a thoroughly good job, filling all cracks; see that no spot fails to be well covered. Do it now.

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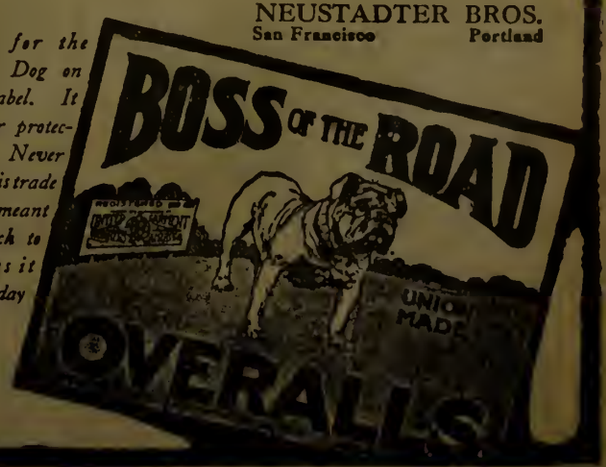

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LABOR in every way over any gravity system, and also over any other separator, by turning easier, being simpler, easier to clean and requiring no adjustment.

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Silencing Old Gabriel's Horn

Uncle Wiseacre Swats the Offender

'WHILE an egg on which a hen has been sitting for two weeks is unquestionably ruined for culinary purposes, it is not without its political value," asserted Old Uncle Wiseacre, reaching into the cracker barrel with one hand and delving into the prune-box with the other. And meeting with no dissension from the hangers-on at Jud Whitson's store, where he was wont to hold forth every Saturday afternoon, he continued on the topic of poultry, which had been suggested by the recent entrance of Miss Lavinia Langhorne with a basket of eggs, which she had traded for some necessary staples.

In view of the fact that Miss Lavinia had been known to trade eggs of questionable antecedents, presumably gathered in large numbers from stolen nests, Uncle Wiseacre's observation did not pass unappreciated among those present.

"Did it ever occur to you," continued the old philosopher, "what a large number of eggs would be added to the numbers of the real hen-laid variety produced in the United States if every farm flock was kept up to the standard of the commercial flocks? I was just looking over my hens the other day. If I was to name the breed that I am keepin', I reckon it would be Buff-Bantam-Cochin-Single Comb-Wyanrock-Legorping-Brahmas, or for short, just hens. I fer one, am goin' to clean 'em all out, pick out one breed that I like, get some good baby chicks and some young pullets to start out with and raise some real chickens. What's more, I'll bet I will get more eggs with less hens than any of you folks that stick to your scrubs.

"How do we look at the farm poultry? I know and you know! We either starve 'em or stuff 'em. We sick the dog on 'em to get 'em out of the front yard and cuss 'em when they lay eggs in the orchard instead of the henhouse where there hasn't been any new straw put in the boxes for six months! When Ma wants some eggs for a big Sunday cake she sends Johnny up in the loft and Martha to look in the mangers, and Fred to search the weed-patch, and if they bring back twenty, half of them are liable to be spoiled and if they bring back three, the hens are called 'no good.' And so it goes. What's more, we keep a lot of fighting, scalp-raising, grain-eating roosters that have no business livin'.

"I was readin' in Orchard and Farm not long ago that the largest percentage of all the eggs produced in America are produced on the farms, not in the egg plants (commercial, I mean; not vegetable). There's a chance for helpin' to win the war that lots of people has overlooked. What if our chickens are a side-line! Too often they're clear outside the line! As Joe was saying the other day about ants, 'it takes a lot of little things to make a big whole.' I, fer one, am goin' to take a day or two off and fix up my chicken yard, and by this time next year, I'm goin' to have the prettiest flock of chickens in this entire neighborhood. What's more, I'm goin' to study up a little on the subject of scientific management and not leave the flock to the wife, who has been too busy all her life raisin' a dust and th' kids, to give much time to poultry management.

"With eggs worth 60 cents, it looks to me as though that little side-line might be made to pay! Me for some good poultry, and they're all going to look alike!"

Suiting the action to the word, Uncle Wiseacre repaired himself to his little place up the road, and was seen that evening puttering about his chicken yard. A terrific squawking heard that night led to the conjecture that the retrenchment had already begun. When the old gentleman was late for church, the next morning, it became apparent that his famous fighting rooster, "Gabriel" had indeed failed to crow as usual at the break of dawn, and reports of a savory chicken dinner later in the day substantiated the suspicions of his friends that he was really practicing what he had preached.

The Farm Ducks

The Pekin breed is kept almost exclusively by producers of "green" ducks, and also on many farms where they are grown for meat. They fatten rapidly and may be fed on rations recommended for chickens, but better results are usually secured by feeding more green and vegetable feeds and a larger proportion of mash.

For the general farmer who is more interested in obtaining eggs than producing meat the Indian Runner is a good breed. This duck holds the same relative position in the duck family that the Leghorn does in the chicken family. It lays a good-sized white egg considerably larger than a hen's egg, and is a small eater, a good forager, and hardy. The introduction of this breed is helping to build up a trade of first-class duck eggs. These eggs should be marketed frequently, as they depreciate in quality more rapidly than hens' eggs. They are open to some criticism because of their somewhat strong flavor, but are more widely used than is generally realized.

The hen which selects a new coat of plumage before October first has been blacklisted as a "slacker," and it is recommended that she be condemned and executed. The later molter is almost sure to be a heavier layer.

Fall Poultry Management

A small flock well cared for is better than a large flock neglected. If too ambitious a start was made in the spring, now is the time to cull out the undesirables. The small weaklings should be disposed of to save feed and give the survivors more room. Many a farm flock of poultry is made unprofitable by neglect during the fall months.

At this season cockerels should be selected for next spring's breeders and placed by themselves with plenty of run if possible. None but strong vigorous specimens should be selected.

Too much stress cannot be laid on overcrowding during the late summer and early fall months. In a few nights all the good work done since hatching can be undone. Be careful and do not overcrowd the growing chicks.

The laying hens should be gone over again very carefully at this time and birds not of sufficient value should be taken out and marketed or eaten. Besides culling for egg production, look out for lice. Specimens that have become too heavy or too light should also be discarded.—Arthur A. Peters, U. S. Poultry Agent

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Remember that eggs produced in the backyard flock cost very little, as the fowls are fed largely upon waste materials.

Pleased Subscribers

There's nothing like feeling that one's hard work and interested endeavor are appreciated. It is exceedingly gratifying, therefore, to receive the many letters of commendation and comment which come to the editor's desk.

L. E. Beltz, an orchardist of Lower Lake, California, advises us that our last issue was "highly appreciated and very instructive." We realize that if it lives up always to the latter attribute, it will always achieve appreciation, and it is therefore our constant aim to publish articles that can be applied with profit to the business of farming. Thank you, sir, and "come again!"

Another subscriber, C. W. Blakeslee of Montebello, California, writes: "As to cutting and saving different articles and keeping them on file, I think I have every copy of Orchard and Farm I have ever received, and I have taken the paper more than three years. I will never be without it if I can get it, as I think it is the only paper for the citrus grower."

We want the news and views of our readers. Write to the editor! And watch for the November issue. It will be one of the best we have ever had the pleasure of sending you!

"Peruvian" Withstands Cold

Although generally supposed to be a somewhat delicate variety, adapted to semi-tropical conditions, Peruvian alfalfa is being grown successfully in cold regions and at high altitudes. One farmer is raising it at an altitude of 7500 feet in Nevada, while a Buhl, Idaho, rancher is very enthusiastic over results obtained in his section. Several fields have withstood temperatures of from 16 to 18 below zero in the mountainous districts of California, and it has been received with great favor in Inyo county.

While the Peruvian, like the Arabian variety, is at home in the warmer climates, it seems reasonable to suppose that strains may be developed which will eventually prove as hardy as the common, or Chilean. If this wonderful strain, already recognized as superior to others in rapid growth, tonnage per acre, and abundance of leaves, proves adaptable to the more severe winters prevalent in sections other than the Pacific Coast region, its possibilities are almost limitless. It has been generally supposed to be very susceptible to winter-killing.

This Month's Cover

Our cover illustration this month is from a photograph taken on the Germain Seed Farm near San Jose. California is one of the great seed-producing centers of the world, its position having been strengthened by the curtailment of imports during the war. Thousands of acres are devoted to the growing of vegetable seeds in the Sacramento and Santa Clara Valleys. The illustration is of a field of lettuce just ready for harvesting.

"Amendment No. 21"

The two California Dental Associations, through their joint committee, are enjoining the voters to kill the proposed amendment which is to be voted on in November, stating that it is a menace to the health of the State and lowers the standard for dental practice to the extent that incompetents and failures from other localities would be permitted to practice here.

Coming at a time when so many registered dentists are being called into the service, the committee asserts, the proposal is exceptionally vicious. It would, they point out, subject the people to the malpractice of quacks which would especially affect the farmer because of the fact that he has less opportunity for the selection of a dentist than the man in the city where the profession is well organized.

A Weatherproof Coat

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A Bit of Orange History

By Henry G. Tinsley

How the seedless navel orange came to California is told by Mr. Tinsley in this absorbing narrative, which is of especial interest because it is taken from the original notes of a personal interview with Luther Tibbets which took place over 20 years ago.

A CLOUD of myths already envelops the origin of the seedless navel orange in California. The man who reared the first navel orange tree has not been in his grave twenty years and the initial trees have been in the country only about forty-seven years. Yet, even now, fanciful tales are printed as history concerning this most important event. From the bringing of the first navel orange trees to Southern California has been developed an industry that not only has added several hundred millions of dollars to the wealth of the State, but has gradually brought about a revolution in the fruit world. The orange products of the State, at one time a drug on the market, yield California an average of $36,000,000 annually. Along with the immortal tale of the hatchet and the cherry tree, and the narrative of William Tell's famous shot at the apple, a correct account of this event should take an important place in the annals of history and horticulture.

In the spring of 1897 it was the writer's privilege to get the facts about the arrival of the original orange trees in California from the man who brought them to productivity. I made a trip from San Francisco to Riverside especially to interview Luther Tibbetts. He it was who reared the first navel orange trees, and it is to his memory that the citrus growers pay tribute. I went with Lyman V. W. Brown of Riverside to the home of the aged Mr. Tibbetts, and there I had two long talks with him concerning the manner in which the trees from which have come all navel orange trees in the world, were brought into industrial horticulture.

Luther Tibbetts' Home

I still have my notes taken that day, and from them I am writing this article.

Luther Tibbetts was then living in an unpainted cabin of redwood boards on the western outskirts of Riverside, on the banks of the Gage canal, where he had dwelt during all his years in California. He was about seventy-seven years of age, and in very poor health. His death followed within a year after the interview. His wife, to whom he was most devotedly attached, had been in her grave about two years and he longed to be with her. His poverty was touching, and his religious faith strong. The primitive conditions of his home life, his struggle for a livelihood, his much-expressed desire to go out and find his dead wife, impressed themselves upon my mind most forcibly. I can even now see the tall, guant, white-haired man as he strode across the uncarpeted floor of his rude home, dwelling on the lack of appreciation for his pioneer work for Southern California, and his yearning to be rid of the struggle with poverty and land and water litigation.

This is what Mr. Tibbetts told me, taken from my yellow-with-time notes and guided by my memory:

Pioneering

Mr. Tibbetts was approaching middle-age in Maine. He had made a financial failure there and had heard of the salubrious climate and fertile soil in Southern California. He decided to come to California and make one more try at achieving a livelihood on one of Uncle Sam's free farms. That was in 1871. He came across the continent over the new Union Pacific railroad. From San Francisco he came down the coast in a little steamer. From San Pedro he went by team and wagon to El Monte. There he stayed for weeks inquiring what government land looked most inviting for settlement. He saw there for the first time the operation of irrigating through ditches.

He settled in the district now known as Riverside and Arlington. He had no sooner entered upon a quarter section of land than he wrote to his wife, who was in Washington, D. C., a guest at the home of her relative, Congressman Ben F. Butler, and told her of his new home in a semi-tropical region. In the letter he asked Mrs. Tibbetts to go to the Agricultural Department in Washington and request them to send him by mail seeds and plants adaptable to a semi-tropical clime, where irrigation was essential. Through the influence of Hon. Ben Butler, the Department of Agriculture dispatched to Mr. Tibbetts a dozen different shrubs and plants.

Mr. Tibbetts said that the package came to him from Washington at about Christmas time. He found that it contained new varieties of tobacco plants, some raspberry cuttings and four tiny shoots of trees, which the department letter of instructions said represented a seedless variety of oranges. Mr. Tibbetts was a staunch Puritan, and he threw the tobacco plants away. But he did plant the seedless orange trees alongside his cabin home. He was too busy developing his government acreage and getting a living in a strange environment and under a new sky, in those pioneer days, to give much heed to the orange trees. Besides, he admitted, he was skeptical about what the department clerk had said of trees that would bear seedless fruit. So he did not pay much attention to the four tiny little shoots which he had planted. He had come from a farming region, and did not know much about fruits, except the fruit of toil.

How They Grew

Four years passed and Luther Tibbetts was still struggling to earn a living for himself and his wife. He was pioneering in a new country. Meanwhile the seedless tree shoots had had an occasional pail of water and a little hoeing to loosen the soil about them.

In the first year, two of the shoots were chewed up by a browsing cow, but the remaining two had in some manner survived neglect and stingy watering. Now in the fourth year they bore a few oranges. The fruit proved seedless, just as the department clerks had predicted. From that time on Tibbetts and his wife gave more attention to the culture of the strange variety of citrus trees. Neighboring ranchers began to tell of the queer sort of oranges without seeds that 'Lute Tibbetts had over on his ranch." The local editor printed items about the oranges.

The first real crop of navel oranges came in 1876, when Mr. Tibbetts took specimens of the new variety out among the dozen men who had been trying to find a profit in seedling oranges in San Gabriel and near Los Angeles. They all regarded with suspicion the claim that any trees would bear seedless fruit every year, and were especially skeptical as to the keeping qualities of such a horticultural freak. Mr. Tibbetts deferred to their opinion, and himself came to regard the two trees which he had growing under the windows of his home as curiosities.

Another year passed, however, and the trees bore more seedless oranges.

(Continued on Page 25)

RO-SAN Indoor Closet

The original chemical closet. More comfortable, healthful, convenient. Takes the place of all outdoor toilets, where germs breed. Be ready for the long, cold winter. Have a warm, sanitary, comfortable, odorless toilet right in the house anywhere you want it. Don't go out in the cold. A boon to invalids.

GUARANTEED ODORLESS

The germs are killed by a chemical in water in the container. Empty once a month as easy as ashes. Closet guaranteed. Thirty days' trial. Ask for catalog and price.

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Ask about Ro-San Washstand—Hot and Cold Running Water Without Plumbing.

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Are measuring water for over 2000 water users. Why not use up-to-date methods in distributing water? Now is the most important time to produce maximum crops on the minimum amount of water. Eliminate waste.

Send for descriptive booklet, "The Water Watch."

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FOR SALE—RANCH TOOLS FOR 30 DAYS AT PRESENT WHOLESALE COST PRICES: WE NEED THE SPACE FOR OUR TRACTOR AND ACETYLENE WELDING SCHOOL. BE PREPARED AND SAVE MONEY BY GETTING YOUR NEXT YEAR'S TOOLS NOW: THIS IS NOT AN ADVERTISING SCHEME, BUT A GENUINE SALE OF ALL KINDS OF RANCH TOOLS.

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Fertilize All Crops with Nitrate of Soda

Small quantity per acre will increase your production and income.

Write or call for particulars.

NITRATE AGENCIES COMPANY
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Rheumatism

A Home Cure Given by One Who Had It

In the spring of 1893 I was attacked by Muscular and Inflammatory Rheumatism. I suffered as only those who have it know, for over three years. I tried remedy after remedy, and doctor after doctor, but such relief as I received was only temporary. Finally, I found a remedy that cured me completely, and it has never returned. I have given it to a number who were terribly afflicted and even bedridden with Rheumatism, and it effected a cure in every case.

I want every sufferer from any form of rheumatic trouble to try this marvelous healing power. Don't send a cent; simply mail your name and address and I will send it free to try. After you have used it and it has proven itself to be that long-looked-for means of curing your Rheumatism, you may send the price of it, one dollar, if, understand, I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer when positive relief is thus offered you free? Don't delay. Write today.

Mark H Jackson, No. 660D, Gurney Bldg., Syracuse, N. Y.

Jackson is responsible. Above statement is true.—Pub.

A Bit of Orange History

(Continued from Page 24)

The following year they bore heavily. Meanwhile, a boom had suddenly swept through Southern California. The Southern Pacific Railroad Company had built the line from San Francisco to Los Angeles and Colton. The coming of the railroad created an enormous activity in agriculture and there followed the first big planting of orange groves in Southern California. Naturally Tibbetts' seedless oranges came in for discussion.

Into Its Own

It was not until several years later, however, that the planters of new groves began seriously to consider the seedless orange, now called the navel. Mr. Tibbetts had allowed a few people to come and take buds from his two bearing navel trees for budding onto seedling citrus stock. There were growing at that time something like 500 young navel trees in Riverside.

It was a long time before the newly-arriving orchardists in Southern California gradually came to see that the navel orange was the thing for them to plant for profitable returns, and now old-time seedling groves were budded to navels, and all went to Tibbetts' two seedless trees for buds. By 1885 several citrus tree nurseries had been started in the vicinity of Riverside and the owners were doing a big business in navel orange trees. When the Santa Fe railroad built into California that year another tremendous boom in real estate burst forth and enveloped the country. Nursery men had enormous demands for their citrus stock. Navel trees, fit for orchard planting, jumped in value from 25 cents to $1.50. In 1887 more than 175,000 navel trees had been planted, and in 1888 the number went to over 250,000. One man, Michael Baldridge of Covina, had the foresight to see the coming call for Tibbetts seedless oranges, and laid in a big supply of budded stock. In one year he sold the whole output of his nursery for $160,000.

Every navel orange tree in America owes its ancestry to Luther Tibbetts' twin seedless orange trees.

From South America

Mr. Tibbetts told me that upon inquiry at the Department of Agriculture in 1880, he learned from the records that in 1870 the U. S. consul at Bahis, Brazil, had sent to the Department eight specimens of seedless orange trees. The specimens had been gathered in the wet lands in the neighborhood of Bahis and had grown up as freaks of nature. The consul thought the tiny shoots well worth the attention of the Department of Agriculture, and sent them to Washington of his own volition. Four of the seedless orange tree shoots were sent to Florida for experimental cultivation, but something happened to them, and being neglected and forgotten, they soon died. It was Mrs. Tibbetts' good fortune to secure the other four imported shoots.

In closing it may be said that Tibbetts' two original seedless orange trees are still the carefully guarded heritage of the Riverside people. One tree stands at the entrance to the Mission Inn, where it was planted by President Roosevelt in 1900, after it had been removed from its original home on Luther Tibbetts' old ranch. The other tree, also removed from its first home, stands today in a tiny park created about it on the main thoroughfare in Riverside, and is cherished by every patriotic resident. Luther Tibbetts died in poverty. He was too proud to let his penury and his struggle to gain a bare livelihood be known. When he became so weak and helpless that he could not resist, his townsmen saw that he had the benefits of nursing and housing.

When Belgium Stemmed the Tide

Four years ago the Belgian Army, war-worn and weak in numbers, confronted the Germans on the Yser. From Liege to the last narrow strip of their country they had resisted the invaders inch by inch, glorious even in retreat.

At the Yser the Belgians performed a signal service to the Allied cause by holding the Germans while the gaps were being closed in the Franco-British line to the rear.

Four years have passed, and the same nations are still at death grips along the Western front. America, too, is there, and has this opportunity because the Belgians kept the enemy from crossing the Yser long ago.

The same unfaltering courage, the same inspiration for sacrifice in our army abroad and in our citizens at home will give us victory.

The complete mobilization of the whole people is necessary and the telephone service has an increasingly important part in speeding the national effort.

More than 12,000 members of the Bell System are in military service. Those that remain at home must fill the gaps and do their utmost, with the co-operation of the public, to help win the war.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

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Correct Lubrication for the "L"-Head Type Engine

This, the "L"-Head type of automobile engine, like all *internal combustion engines*, requires an oil that holds its lubricating qualities at cylinder heat, burns clean in the combustion chambers and goes out with exhaust. ZEROLENE fills these requirements perfectly, *because it is correctly refined from selected California asphalt-base crude*

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They know from the records of their service departments—and we know from exhaustive tests—that Zerolene, correctly refined from selected California asphalt-base crude, gives perfect lubrication with least carbon deposit. Get our lubrication chart showing the correct consistency for your car.

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ZEROLENE
The Standard Oil for Motor Cars

Thus constructed, the GMC SAMSON SIEVE-GRIP TRACTOR has for years proved its ability to meet trying service. It is an unfailing help in time of need.

Like the battleship, all material entering into the construction of the GMC SAMSON SIEVE-GRIP TRACTOR is carefully selected and tested to meet the duty to be performed.

THE GMC SAMSON SIEVE-GRIP TRACTOR is simplicity itself. It is powerful and reliable. It displaces ten horses on the farm and is adapted to countless uses, stationary and otherwise, for many of which horses are not suitable.

The GMC SAMSON SIEVE-GRIP TRACTOR will do your plowing, discing and cultivating in field, orchard and vineyard and do it better, cheaper and quicker than any other power.

The GMC SAMSON SIEVE-GRIP TRACTOR will pull your binders and small harvesters, drive your grain separators, run your bean threshers, operate you ensilage cutters and blowers, pump your water, do your odd jobs, CUT YOUR COSTS and INCREASE YOUR INCOME.

Buy a proven product.

For further information, ask the man who owns one or send for our booklet, Better Farming.

Samson Sieve-Grip Tractor Company

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Ranchers, Attention!

WHILE IT LASTS

100,000 ft. choice bright second-hand galv. corrugated iron, all lengths.
3,000,000 ft. dry dimension lumber, all dimensions.

Greatest stock of new and second-hand plumbing, more than all others combined; must be seen to be appreciated; latest designs at reasonable prices; building material for every purpose; ranch accessories, such as nails, barb wire, hog and poultry fencing.

Get our estimates; several buildings now coming down; every shipment, large or small, guaranteed; play safe and buy right.

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1501 TO 1527 MARKET STREET, SAN FRANCISCO.

Speeding Up the Busy Bee

By Reece T. Blake

How progressive California producers are providing perpetual pasture and "sweetening the pot" to the extent of a trebled output.

RIDING to work is a function not confined to the human laborer. "Shorten the distance to the source of supply and speed up the production of honey," is the slogan which has been adopted by California bee farmers.

Now that honey, on account of sugar scarcity, has come to play such an important part in our food conservation program, it is vitally important to exact the maximum production from bees, and it has been learned that this can best be accomplished by using automobile trucks to convey the bees from one flower field to another.

Bees will go many miles to gather honey, but the farther they have to travel the fewer trips they can make in a day. Likewise they "work out" a flower pasture in a short time, and unless they have access to fresh pasture, fail to produce honey in profitable quantities during the remainder of the year. In Southern California, where a wide variety of flowers bloom throughout the year, the apiculturists have adopted the system of moving their bees from one locality to another in order that the little workers may have access to the richest honey fields. In this way the annual production of honey in the State has been increased nearly 300 per cent.

L. E. Mercer, who owns an apiary in Castaic Canyon, is one of the pioneers in this business of motorized honey production. Having 280 stands of bees on his home place, he employed E. F. Lamoreaux to look after them, supplying him with a ton and one-half truck with which to handle the business.

Mr Lamoreaux has been handling the Mercer bees for two years and has been remarkably successful. A house was built upon the truck which has a capacity of 100 stands of bees. Early in March he loads the bees and moves them from Castaic Canyon to the foothills at Glendora, where there are thousands of acres of orange blossoms to feed upon. The bees remain there for about two months, and in that time they have been known to produce from five to six tons of honey. Last year they produced five and one-half tons, worth $240 per ton, a total value of $1320.

When the orange blossom pasture grows thin, about the middle of May, the bees are loaded into the truck house and hauled back to Castaic Canyon, where they manufacture wild sage honey until about the middle of July. They produce about four and one-half tons of it per year, and at last year's price it would have been worth $1240. If the auto truck were not used, this sage honey would represent the total production of the bees for one year.

In July, when the sage blossoms are no longer available, the bees are again placed upon their truck, and this time they are taken down to Ventura, Oxnard or Somis, where they have access to the blossoms in the lima bean fields for six or eight weeks. Last year in the bean fields, the Mercer bees gathered nine and one-half tons of honey. This brought $2280. The total production of honey by these 280 stands of bees last year was nineteen and one-half tons, valued at $4840. Under ordinary circumstances, had they remained in Castaic Canyon all the year, they would not only have stopped producing after gathering the $1240 worth of wild sage honey, but would have been weaker than they are now, from lack of nourishment during the remainder of the year.

By moving the bees from one flower field to another Mr. Lamoreaux has forced them to produce an additional $3600 worth of honey in twelve months. That would probably more than pay for two light trucks. It amounts to an earning capacity of more than $17 per colony each year.

In moving the bees from place to place, the truck will convey 100 stands at a time. The distance from Castaic Canyon to Glendora is 64 miles. Mr. Lamoreaux can transport the entire apiary to Glendora in three trips. Six times the distance, or three round trips, means a distance of 384 miles for the move; it adds $1320 to the income derived from the bees. The distance from Castaic Canyon to desirable pastures in the bean fields varies, but this mileage added to the Glendora round trip will not run the annual mileage of the truck over 600 miles, and the total amount of travel brings in an extra $3600.

Mr. Lamoreaux is enthusiastic over using auto trucks in the bee business. He says it is almost impossible to use farm wagons in moving bees any considerable distance, because the jolting over the roads breaks down the comb structures in the hives, while the long confinement during the journey kills many bees and weakens the colonies. With the auto truck he can easily move a load of bees from Castaic Canyon to the orange belt or the bean fields in one day, and can

The Beemobile

Successfully Used in High Speed Honey Production

make the move during the cool hours of the night. The bees go to bed at Castaic and awaken to find themselves among fragrant flowers one or two counties distant, with everything in prime condition for the immediate manufacture of honey.

After the bees have been removed from the house upon the truck, Mr. Lamoreaux installs a small gasoline engine in the house, and connects it with a honey extractor. With this equipment he is able to extract all of the honey made by the bees, doing the work in the shade, where the product can be kept cool and clean.

Many other bee farmers in California have adopted the auto truck method of speeding up honey production. Perpetual pasture is the keynote of the plan.

Single Tax Debate

Kern's Argument

(Continued from Page 5)

the land and so confiscate its value, thereby depriving its owner of the fruits of his industry and thrift

All this the people of California are asked to approve, because a group of experimental idealists, laboring for a "cause," believe private property in land is immoral. But it seems that the Single Taxers are divided in their advocacy of this amendment.

Dissention in Ranks

Clarence E. Todd, a prominent San Francisco attorney, and formerly the executive of the California League for Home Rule and Taxation, is one of the ablest and most earnest Single Taxers in the State. He declares that "the inflammatory utterances of the California Bolsheviki do not represent the philosophy of Henry George," and proceeds:

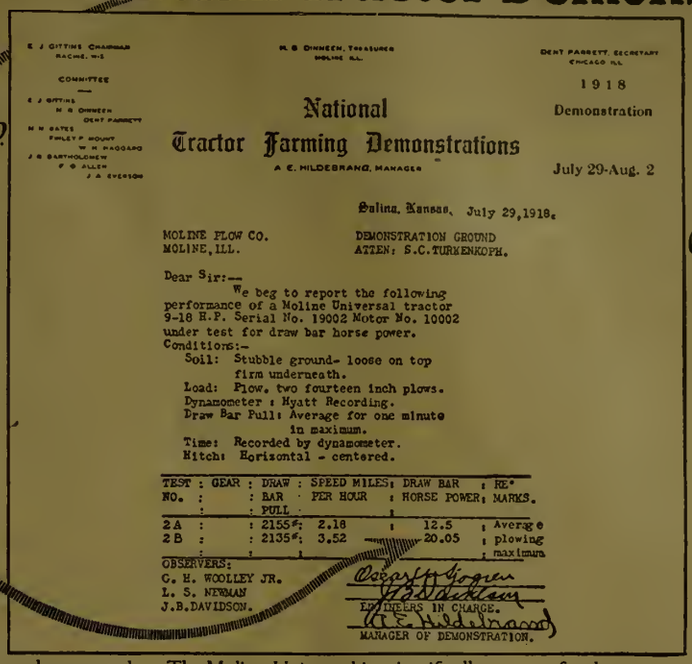
"The constitutional amendment put forward by the 'Great Adventure' attempts to exempt from taxation the untold millions of dollars represented by the franchises of the great public service corporations of the State. This is worse anti-single tax doctrine than the real estate interests have ever dared to advocate, for they have never gone so far as to claim the entire exemption of their land from taxation, while this so-called Great Adventure proposes to exempt entirely these valuable franchises, which are community-created in exactly the same way as are land values.

"Such a proposition is repudiated not only by Single Taxers but by all the rest of the progressive citizens of California who followed the banner of Governor Johnson. Under our present law, placed on the statute books by Mr. Johnson, the taxes paid by the public service corporations defray practically the entire expense of the State government, these corporations being free from local taxation.

Anarchistic Views.

"I want it understood that, when I refer to the 'Great Adventure' as the Bolsheviki of California, I am not imputing anything to them that they do not claim for themselves. Their literature is wholly typical of the Bolshevik theory and practice. I want it understood that the atmosphere of threat and violence which permeates the movement is not a part of the philosophy or program of the Single Tax The only revolution with which Single Taxers have any sympathy is one brought about by orderly political processes. While the 'Great Adventurers' are making use of the political machinery in the measure under discussion, they boast that direct action is really the mainspring of the movement and the only method that will ever gain the desired end. The point I wish to make is that to associate a policy of this kind with the Single Tax would be dishonest, and if permitted would result in the demoralization of the whole Single Tax move-

Moline-Universal Makes Wonderful Record at National Tractor Demonstration



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1918

National Tractor Farming Demonstrations

Demonstration

A. E. HILDEBRAND, MANAGER

July 29-Aug. 2

Salina, Kansas, July 29, 1918.

MOLINE PLOW CO.
MOLINE, ILL.

DEMONSTRATION GROUND
ATTEN: S.C. TURKENKOPH.

Dear Sir:—

We beg to report the following performance of a Moline Universal tractor 9-18 H.P. Serial No. 19002 Motor No. 10002 under test for draw bar horse power.

Conditions:—
Soil: Stubble ground- loose on top firm underneath.
Load: Plow, two fourteen inch plows.
Dynamometer: Hyatt Recording.
Draw Bar Pull: Average for one minute in maximum.
Time: Recorded by dynamometer.
Hitch: Horizontal - centered.

TEST NO.	GEAR	DRAW BAR PULL	SPEED MILES PER HOUR	DRAW BAR HORSE POWER	REMARKS.
2A		2155#	2.18	12.5	Average
2B		2135#	3.52	20.05	plowing
					maximum

OBSERVERS:
G. H. WOOLLEY JR.
L. S. NEWMAN
J.B. DAVIDSON.

ENGINEERS IN CHARGE.

MANAGER OF DEMONSTRATION.

Develops 20 H.P. on the draw bar and we only rate it at 9 H.P. Think of it!-

Officially Acredited with 26.48 H.P. at the belt- We rate it at 18 H.P.

IN previous advertising we have stated that the Moline-Universal was conservatively rated at 9-18 h. p. Just how conservative is shown by the astonishing official tests made at the National Tractor Demonstration which showed the Moline-Universal to have an excess of over 11 h. p. on the draw bar and 8 h. p. at the belt.

Certainly these tests show beyond question of doubt the efficiency of the Moline-Universal. For each 169 lbs. of weight the Moline-Universal developed 1 h. p. on the draw bar. Compare this with the ordinary tractor which develops 1 h. p. for each 250 to 300 lbs. weight—and you will clearly realize the greater efficiency and corresponding greater economy of the Moline-Universal.

However, we shall continue to rate the Moline-Universal at 9-18 h. p. A tractor to give satisfactory service and stand up for years under the strain of tractor work must have reserve power, and the greater the reserve the better. Under normal conditions the Moline-Universal has from 50 to 100 per cent reserve power. Think what this means.

Ninety-eight per cent of its entire weight is on the two big drive wheels where every ounce is available for traction. The Moline-Universal is scientifically constructed and utilizes its weight to best advantage. It has no dead weight.

From the above report you will see that the Moline-Universal developed 20.05 h. p. at 3.52 m.p.h. pulling two plow bottoms 9 to 10 in. deep in exceptionally hard plowing. At 2.18 m.p.h. it developed 12.5 h. p. The difference in speed accounts for the extra draw bar pull. At 3.5 m. p. h. under average conditions the Moline-Universal will plow as much in a day as a 3-plow tractor traveling at 2.25 m.p.h.

Just the Right Size

If the Moline-Universal were built to pull a 3-bottom plow, it would be too heavy for light work. As the Moline-Universal is now built it has ample capacity for all ordinary plowing needs, and at the same time is equally suited for light operations such as cultivating, haying, harvesting, etc. which require far more work hours than your heavy work.

You are chiefly concerned in getting your work done quicker and better than you ever did before. You have no fixed power requirements. One day your work may be heavy, the next day light—and the light work is just as important as the heavy. Thus, you must have a tractor which will do both heavy and light work efficiently and economically, and the Moline-Universal fully meets both these requirements. You have plenty of power when you need it and when you don't want it you have no extra expense—as you would have with a heavy tractor for light jobs.

Remember this—here s what the Moline-Universal Tractor will do for you:

(1) Gives you plenty of power for all your work, both heavy and light.

(2) It does all farm work including cultivating.

(3) One man operates both tractor and implement from the seat of the implement in all operations.

(4) Electric lights enable it to be worked nights to make up for unavoidable delays.

(5) Because of self-starter, non-robust labor can operate tractor successfully.

(6) So well made and has so much reserve power that it will give many years of service.

Send for free catalog which gives detailed description of the Moline-Universal Tractor. Address Dept. 48.

Moline Plow Company, Moline, Illinois

The Waterloo Boy

A SUCCESS AT DEMONSTRATION.
See it or write for catalogue.

W. L. CLEVELAND CO.
210 North Los Angeles Street,
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Don't fail to mention Orchard and Farm when you answer advertisements. It is to your advantage as well as ours.

PASS ALONG YOUR IDEAS. OVER $100 IN PRIZES!

In order to make Orchard and Farm truly a clearing house or meeting place for the farmers of the Pacific Coast we ask our readers to send in their experiences. Almost every farmer is an inventor, continually devising time-savers, short cuts and new methods. Almost every farmer is an experimenter, continually making new discoveries. A photograph, drawing or rough pencil sketch is very desirable in connection with such stories. It is better to send the films of photographs, although we are very glad to get the prints.

All such communications will be saved and the best ones published. At the end of a year a committee of experts from the College of Agriculture of the University of California will pass upon them.

The writer of the communication which is adjudged by this committee to be the most valuable, will receive a prize of $50. The second prize will be $25, the third prize $15, the fourth prize $10, and the fifth prize $5.

DIRECTIONS FOR ENTERING THE CONTEST

Write to Orchard and Farm, Examiner Bldg., Los Angeles, making your letter as clear and as brief as possible; give full name and address and mark your communication with the words "For Prize Contest." Don't forget the sketches or pictures if it is possible to send them; they are not, however, required for entrance in this contest.

Help Your Fellow Farmers to Help Win the War.

For the Farm Woman

Edited by Isabel Sinclair

How to Use Honey

A TRUE bee enthusiast, C. D. Stuart of Los Gatos, who has been writing for Orchard and Farm a series of articles on bee-keeping, has prepared with the aid of Mrs. Stuart the following interesting list of honey menus, all of which have been tried and "not found wanting." The housewife patriotically interested in saving sugar will no doubt find these appetizing dishes of great assistance in satisfying the sweet tooth of the family.

Honey Lunch No. 1

Fruit Salad and Honey French Dressing; Honey and Cream Cheese Sandwiches; Nougat Wafers; Iced Tea and Comb Honey.

The salad may be from any fruit desired, served with lettuce and a sprinkling of chopped English or black walnuts. Pineapple and orange make an appetizing combination.

Recipe for the dressing is furnished by Dr. A. J. Gerlach of Los Gatos, the originator, who named the mixture "Lipoido." Into any given measure of extracted honey, stir with a spoon and thoroughly mix for one minute with an egg beater, an equal amount of strained lemon juice. Take a quantity of peanut, olive, corn or any other oil, equal to the amount of honey and lemon juice together, and whip the oil into the latter by several installments with an egg-beater for seven minutes. This dressing will keep for several days in a cool place. It should be stirred with a spoon before using, as it will divide if undisturbed for some time into a thick top dressing and a thin under dressing.

The sandwiches are made by mixing honey with cream cheese to be used as filling for bread or baking powder biscuit sandwiches. Chopped nut may be added to the honey and cheese if desired.

Delicious Nougat Wafers may be made by following this recipe closely:

½ cup butter; 1 cup brown sugar; ½ cup milk; ⅞ cup bread flour; 4 teaspoons ginger, or 2 teaspoons powdered cardemon or aniseed.

Rub together the butter and the sugar and add alternately the milk and the flour, sifted with the spices. Spread in a very thin layer on the bottom of an inverted dripping pan or on flat tins made for the purpose. Mark off into pieces about an inch wide and four inches long and put together in pairs with honey nougat filling made as follows:

1 cup honey; ½ cup sugar; ¼ cup water; 2 egg whites.

Boil the sugar, water and honey together until the syrup makes a thread when dropped from a spoon, or until drops of it hold their shape when poured into cold water. Beat the eggs to a stiff froth, pour the syrup over them, put the dish holding the mixture in a place where it will keep warm, but not cook rapidly, and beat until it will hold its shape.

A chunk of comb honey about an inch square and crushed ice suggest the possibilities of iced tea on a hot day. Apollinaris water and a brandy cherry add the finishing touches.

Honey Lunch No. 2

Cheese Custard and Honey Apple Jelly; Honey Bread and Butter; Honey Ice Cream and Honey Cookies; Hot Tea Sweetened with Honey.

The recipe for cheese custard calls for:

1 cupful of grated cheese; 2 egg yolks; ½ cupful cream or rich milk; a speck of salt and paprika.

Add the cream to the cheese and mix until the cheese is melted. Remove from the fire and add the yolks of the eggs. Bake in paper cases or buttered ramekin molds. Serve with apple jelly made as follows:

2 quarts of apples cut in small pieces; 2 cups honey; 1 cup honey vinegar (other vinegar will do); 1 teaspoon cinnamon.

Heat the honey, vinegar and cinnamon together and cook the apples, a few at a time, in the syrup until they become transparent. Pour over the apples the syrup which remains after all the fruit is cooked.

Honey bread more than conforms to war regulations by the complete elimination of wheat flour.

2 cups honey; 4 cups rye flour; 1 teaspoon soda; 4 teaspoons aniseed; 2 teaspoons ginger; 4 teaspoons powdered cardemon seed; 2 egg yolks; ¼ cup brown sugar.

Sift the flour with the spices and soda and add the other ingredients. Put the dough into shallow, buttered pans to a depth of about an inch, and bake in hot oven.

For honey ice cream take:

1 quart thin cream, ¾ cup delicately flavored honey. Mix ingredients and freeze.

Tea may be served with thin slices of lemon.

Honey Lunch No. 3

Sprout Salad and Honey Dressing; Honey Rissoles; Boiled Honey Custard; Hot Chocolate with whipped cream, sweetened with honey; Honey Wafers.

The following honey dressing may be used with any salad in place of mayonnaise:

4 egg yolks; 2 tablespoons lemon juice; 2 tablespoons butter; 2 tablespoons honey; 1 cup cream; 1 teaspoon mustard; 1 teaspoon salt; paprika to taste.

Heat the cream in a double boiler. Beat the eggs, and add to them all the other ingredients but the cream. Pour the cream slowly over the mixture, beating constantly. Pour it into the double boiler and cook until it thickens, or mix all the ingredients but the cream and cook in a double boiler until the mixture thickens As the dressing is needed, combine the mixture with whipped cream.

Pastry coverings for rissoles are made as follows:

1-3 cup butter; 2 egg yolks; 1 egg white; 2-3 cup water; ¼ cup brown sugar; flour.

Mix together all the ingredients but the flour and add enough of that to make a stiff dough. Roll out as thin as a knife blade; cut into square or round pieces, taking care to avoid the necessity of rolling a second time, as this is likely to make the dough very tough. A honey filling is used with this dough, made from

1 cup honey; 2 ounces candied orange peel; rye bread crumbs; aniseed.

Bring the honey to the boiling point, remove from the stove, and add as much bread crumb as it will moisten while hot. Add the orange peel and enough aniseed to give it a decided flavor. Roll this filling into small balls and lay one on the center of each piece of pastry; fold the pastry over and press the edges together. Bake in a hot oven.

To make boiled honey custard, mix the honey eggs and salt. Scald the milk and pour it over the eggs. Cook in a double boiler until the mixture thickens. This custard is suitable for use in place of cream or gelatin desserts, or to be poured over sliced oranges or stewed fruit.

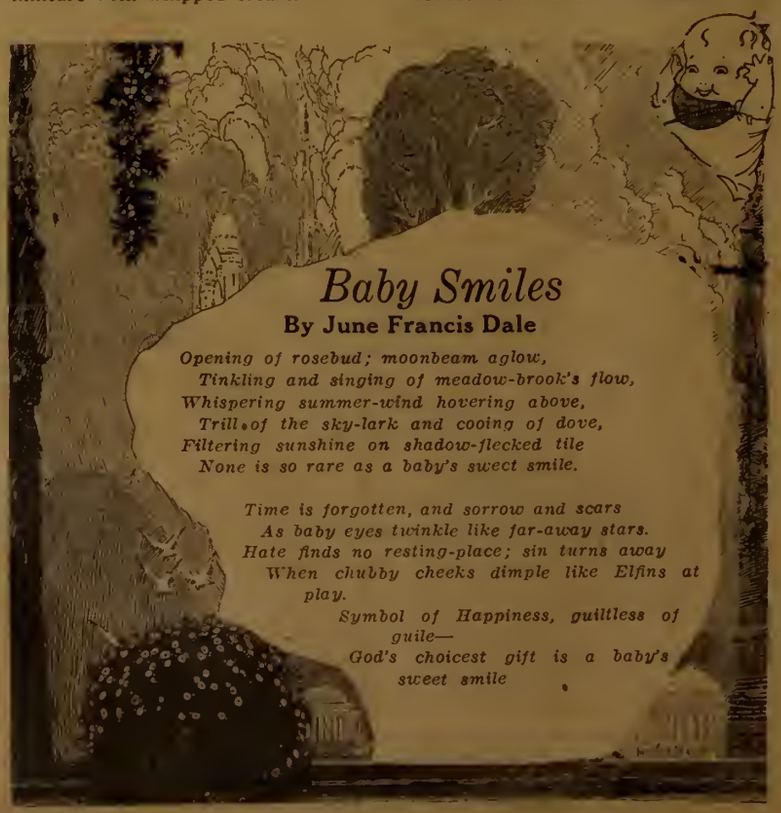
Make chocolate in the usual manner, substituting honey for sugar. Serve with rolled honey wafers, made as follows:

¼ cup butter; ¾ cup honey; ⅞ cup flour; ¼ teaspoon aniseed or powdered cardemon seed.

After the third lunch, one can begin all over again, thus providing menus for six days. On the seventh, a more elaborate dish may be prepared, suitable for an entree at dinner:

Cheese Delight

Shave five ounces of rich, soft cheese into small pieces and put them in a saucepan with one egg, a level tablespoonful of butter, a saltspoonful of salt and half as much cayenne, a level teaspoonful of mustard and five tablespoonfuls of milk. Cook in double boiler until the cheese is soft and creamy; then set back to keep hot. Have ready five slices of toast on hot plates. Poach in honey, fresh eggs enough to allow one to a portion Turn the cheese mixture over the toast and lay on the eggs. Serve the hot honey in a small tureen, as many people like it over the cheese.



Traveling With Children

Because of high fares, due to the great need for cars, locomotives and men to carry supplies of every sort many families are staying at home, rather than take pleasure trips which necessitate railroad travel.

If a trip with young children is an absolute necessity it should be carefully planned as far in advance as possible. It is necessary to remember that berths and seats cannot now be reserved either by wire or otherwise, but must be purchased with the ticket.

There are many things for mothers to consider in starting on a journey with children. Food is perhaps her first problem. The easiest child to travel with is the young breast-fed baby. His food is all ready for him, and usually he sleeps most of the time —the train seems to lull him to sleep. The bottle-fed baby presents the greatest problem. His milk should be made ready before starting on the journey. If certified milk can not be obtained the milk should be boiled or thoroughly sterilized, and packed in ice, after being cooled to 50 degrees. The porter will usually be able to have the milk kept in the refrigerator of the dining car, and to bring hot water when it is necessary to warm a bottle. These precautions are, of course, not so necessary when the trip can be accomplished in a single day, or even in twenty-four hours. For these trips it is possible to use dried or powdered or malted milk, and make each feeding as it is needed.

To keep restless children amused through a long journey the mother should provide them with simple occupations, such as cutting out pictures, or coarse knitting. Books, dolls and other similar toys may be carried also. Unlimited patience will be the mother's best armament. A long journey is a fatiguing experience even for a seasoned adult and far more so for the restless child unaccustomed to long sitting, and probably more or less upset by the excitement attendant upon the preparations for the trip. The mother must keep herself as serene as possible, or her own nervous weariness will react still further upon the children.

Children are frequently overdressed for a journey. Very simply made little dresses of gingham, or any of the pretty cotton materials, or wash silk with bloomers to match, look very nice and will come through a long trip and still be presentable at the end.

China, first in many things, had women soldiers long before they were known in Russia. During the Tae Ping rebellion, 1850, women as well as men served in the ranks. In Nanking, in 1853, an army of 500,000 women was recruited They were divided into brigades of 13,000 each and were commanded by women officers.

Teach the children to eat slowly, to chew their food thoroughly, and to drink milk slowly. The best way to teach this is for the grown-ups to set a good example

Black Leaf of Pears

To the Editor of Orchard and Farm:

I am enclosing some leaves that are blighted. Such leaves are common throughout the pear orchards of the colony and I should like to know the cause and remedy.—A. Dunning, Atascadero, Cal.

Reply by R. W. H.

These leaves are affected with a peculiar trouble known as black-leaf, or "sour-sap" Although considerable work has been done in the study of this condition, the precise cause is not known. The weight of evidence tends to show that it is due to sudden changes in climatic conditions, from extremely dry weather to heavy rains and vice versa. It has been prevalent this season owing to the long, dry fall and winter. It is much worse on heavy lands and in wet seasons and seems to be connected with lack of sufficient drainage.

Although the trouble sometimes affects small branches, which die back and turn black, it is usually confined to the leaves, which commence to turn brown at the outer edges; the color then works inward.

Sour-sap affects a number of deciduous fruit trees, but we are finding that what used to be considered sour-sap, especially of apricots and peaches, is really caused by wood-rot fungi. I do not believe, however, that these organisms have ever been connected with black-leaf of the pear.

Except to suggest providing as uniform moisture conditions as possible, there is little to be said in the way of dealing with this disease. Research work has so far failed to disclose any other way of combating it. Drainage and proper irrigation will help.

It can be distinguished from pear blight by the absence of the red color underneath so characteristic in the latter.

Using Old Springs

There are a number of ways to utilize old springs and spring leaves. An Idaho subscriber gives us a "tip," which, although no doubt well known to many, may be of value to some of our readers.

To the Editor of Orchard and Farm:

Stopping in a garage the other day to repair a puncture, I borrowed a tire tool from the proprietor and found it so large and strong as compared to the ordinary tire-iron that I asked him where he got it. "Came with my car," he said with a smile. I remarked that he got better accessories than I did, because mine was too small to be of much use.

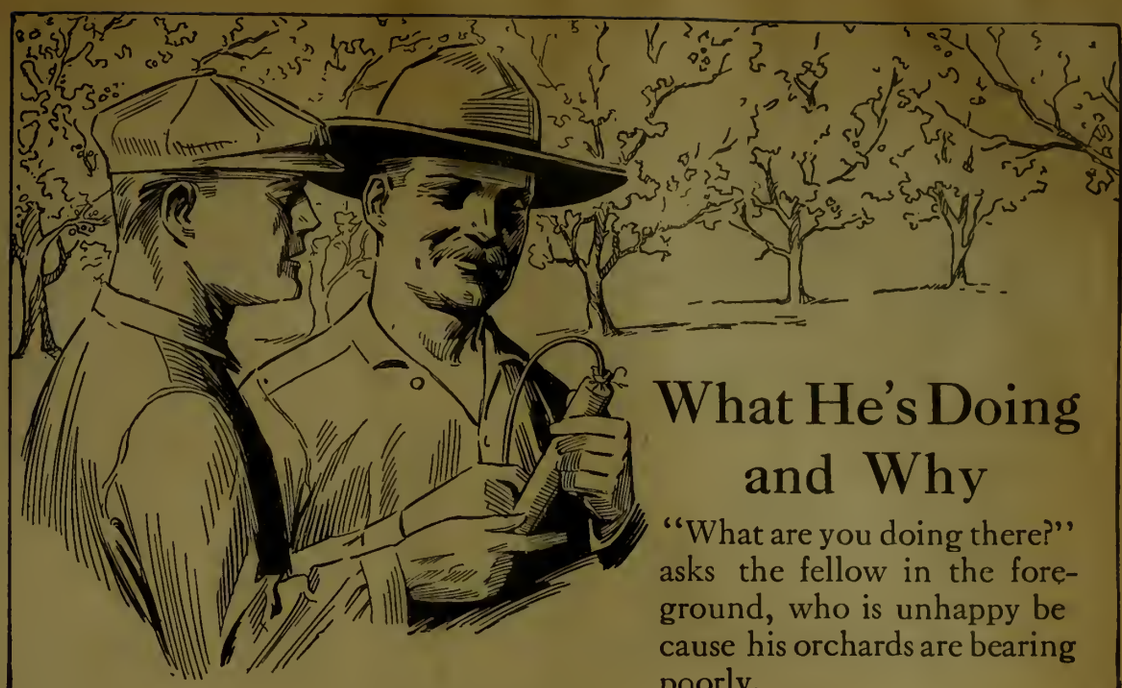
"Where's that broken spring I took off of your machine last week?" he asked.

"I threw it in the junk pile," I said, "but what has that to do with ———? Then I saw that the tire-tool I had borrowed from him was nothing more than a leaf from a broken spring, big and strong enough to pry loose the toughest casing from its rim.

A Cold Chisel

Another handy-man finds old buggy springs useful for making cold chisels. He points out that there are a good many places where an ordinary cold-chisel cannot be used For instance, if one wants to cut the nails from siding, without taking off the boards, it is necessary to have a very thin chisel.

"Take a leaf from an old buggy-spring," he writes, "and break it between two posts; it is hard to crack but strong arm methods will do the work Then sharpen the slim end on the stone or carborundum grinder and you have a serviceable nail-cutter or chisel."



What He's Doing and Why

"What are you doing there?" asks the fellow in the foreground, who is unhappy because his orchards are bearing poorly.

"I'm giving my trees a new lease of life," answers his prosperous neighbor whose orchards always do well. "I'm getting ready this fall for a bumper crop next year. I'm breaking up the ground around the roots of the trees with

HERCULES DYNAMITE

"There's nothing like it to keep an orchard in the pink of condition —that is, nothing except planting in dynamited holes to begin with.

"By blasting holes between the rows of trees you shake up ground that you can never reach in any other way. And how the roots do grow through it!

"If you have never tried this on your orchards it's time you did. Write today for the book, 'Progressive Cultivation', which tells all about it. It is sent free on request."

HERCULES POWDER CO.
1015 Chronicle Building
San Francisco California

Hercules Powder Company,
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Dear Sirs:—Please send me a copy of "Progressive Cultivation." I am interested in dynamite for.....

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For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

NEW and 2nd Hand

Screw Casings Fittings and Valves Guaranteed For Pressure

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TESTED and GUARANTEED.
Main and Howard Sts., San Francisco.

Two of the many fine values in Durable-DURHAM Hosiery

BO-PEEP
A serviceable stocking for women. Made from soft lisle finished yarn. Medium weight. Wide elastic top. Double reinforced heels and toes. Black and white.
Price 25c pair

For active people —hosiery that stands the wear

FOR men and women who work or tramp outdoors—for lively, healthy, romping children—Durable-DURHAM Hosiery is made extra strong. It is reinforced at points of hardest wear—that saves darning and means fewer new pairs to buy.

DURABLE
DURHAM HOSIERY
FOR MEN, WOMEN AND CHILDREN
Made strongest where the wear is hardest

There are styles for work and play, for every season of the year. In every pair the legs are full length; tops are wide and elastic; sizes are correctly marked; the colors won't fade. The soles and toes are smooth, seamless and even.

For the cold weather ahead—ask your dealer for Durable-DURHAM Fleecy-lined Hosiery.

It is full of warmth and full of wear. The fleecing is extra thick, soft and warm. There are fleecy-lined styles for men, women and children. Look for the Trade-Mark Ticket attached to each pair of Durable-DURHAM Hosiery. Prices are 25, 35, 40 and 50 cents.

Write to Sales Dept., 88 Leonard St., New York, for free Catalog showing all styles.

DURHAM HOSIERY MILLS, Durham, N. C.

ALPINE
Heavy weight, double fleece-lined stocking, with extra wide and elastic flare top. Double reinforced heels and toes. Feet and toes are smooth, seamless and even. Black.
Price 35c pair

Single Tax Debate—North's Argument

(Continued from Page 5)

forestalling and pre-emption of the natural birthright of children yet unborn. It will prohibit anyone or any class from doing to the source of food what we now imprison men for doing to the food itself; i. e., hoarding. If it is a crime to hoard, to corner, to monopolize food, should it not be even a greater crime to hoard its only possible source?

Land monopoly is also a national danger, the nation's weakest point, in this hour when the greatest need is for increased production. Will Single Tax increase or retard production? That is the one big, vital question now. Every other issue is of vastly less importance. Will Single Tax strengthen or weaken the nation? As you determine that, so you should vote.

Single Tax will make it profitable to use land and unprofitable to monopolize it. All the improvements and work you put on land will not be taxed; all the land you hold idle will be taxed just the same as if you used it. Will that encourage the use of land or not?

The farmer now pays taxes on everything, plus his land value tax, while his used acres are assessed five times higher than the idle railroad or corporation land adjoining. Will it rob the farmer of his land to untax everything but his land value and to tax the idle acres at the same rate as the cultivated farms? Will that throw the tax burden on the farmer, or upon the twenty or thirty enormous holdings of idle acres that constitute the greater part of "The Curse of California?"

Mr. Kern says the big estates have been cut up into small holdings. It would not matter if they were cut up, so long as they are still held idle, and the fact is, there was a million less acres under cultivation in California in 1910 than in 1890 (U. S census). Some big estates may have been cut up, but others have been accumulating. While the population of California has been growing, the number of individual farmers and land owners has been decreasing. Land speculation and land monopoly have increased. Tenant farming and mortgages also have alarmingly increased.

Are farm and home mortgages a strength to the nation, or the strength of a few millionaires? The strength of every nation is in the number of individual farmers and home owners, and these have been decreasing in California more rapidly than elsewhere, while land speculation has increased as nowhere else!

That Single Tax will end land speculation and monopoly is admitted even by Mr. Kern, who proclaims it as the end of private land ownership. Now, of course, no one owns a piece of land; that is a physical impossibility. What he owns is the right or title to the produce or revenue from land and the right to eject other people from it. Single Tax would not impair this right or title, except as to unused land, and the social need, the human need; the need of progress; the greatest need of the republic today is that the unused land should be open and accessible to him who will use it; that farming and house building should be made profitable and inviting.

The improvement and personal property taxes that Mr. Kern says will be removed from the big skyscrapers and rich corporations never was on them. It was on their tenants and patrons. Mr. Kern says: "Property aggregating $1,315,503,514 in value, which is now paying its just portion of the expense of government" ——. Does he keep his fingers crossed when he says that, or is he just thinking carelessly? The men who own that billion dollars' worth of property do not pay five per cent of their "just portion of the expense of government." The tax on buildings is paid by the tenants; it is added to rent—house rent, office rent, room rent. The tax on public service corporations is added to the service; it is paid, not by the stockholders, but by the patrons of the corporations.

As to corporations escaping taxation under Single Tax, why do they spend a million dollars to oppose Single Tax so bitterly, so treacherously? The truth is that they are not now assessed, except on the value of their franchises, and for that but slightly. These franchise values, however, being very largely land values, will, under Single Tax, be assessed at their full value, and the land values tax is the one tax that cannot be evaded or passed on to the consumer. That is why the corporations go to such great expense in opposing Single Tax.

Nor will these eliminated taxes be added to the farmer's burden. They will fall on idle acres and vacant lots until the monopoly of and speculation in these has ceased entirely and the State is settled up with workers, factories and land users. Then, when there are a million farmers instead of only 85,000 in California, the eliminated improvement and personalty taxes will be pro-rated among the land users according to the value of each holding.

We will not quarrel over the question of whether Single Tax means the abolition of "private ownership" of land in favor of "government ownership," or not. These are but terms, words. In theory the government owns all the land now, and sometimes exercises its power of "eminent domain." In actual practice, human beings must plow the soil and develop the resources of the earth.

Single Tax means that no one but the government itself shall have the "right," the privilege, or the power to demand rent or purchase price from anyone for the use of the unimproved land.

That such a system would take land away from those who use it, is too ridiculous a supposition to need serious refutation. Do our anti-Single Tax monopolists and "prominent" lawyers' clerks mean to say that Single Tax will lift the human family up in the air, or make us nest in treetops? What else can they mean when they say that Single Tax would rob the farmer of his land?

It would "rob" him of any considerable acreage or any valuable lot he may now be holding idle; that is its purpose. But it is either misunderstanding or untruth to say that to end land monopoly and land speculation will be to drive people away from using the earth.

Single Tax will put all the moral premiums and economic rewards upon the use of the earth, and will take all the profit out of its monopoly and speculation. It will untax every kind of useful industry, from crop raising to building city structures and will apportion the taxes to each according to the land value which each withholds.

"But are we to let go untaxed the one who does not use any land?" There's no such "animal." There isn't a human being who lives or dies without using land; and if he lives on the tenth floor of a city apartment house and works on the twentieth floor of a big office building, still he uses land and is taxed therefor in the price of his food, clothing and shelter. No one escapes the land values tax and no one can shift his fair portion of it to another.

Single Tax is not a panacea for "all the ills that flesh is heir to," but these things it will do for California:

Open 20,000,000 ideal acres, mines and oil wells, to immediate use; increase the quantity and lower the price of food; break up the big idle estates and end land monopoly; bring millions of settlers to build homes and produce supplies, on land that can be paid for by crops grown on it; halt the alarming increase of tenant

(Continued on Page 31)

A Good Method of Curing Clover Hay

How an Oregon farmer departed from the established custom and put up soft, bright hay of unusual palatability.

By A. Claudus Kritten

"THAT is the best clover hay that was ever put on this ranch," said L. R. Alderman, Portland owner of Mission Rose Farm at Dayton, Oregon, as he watched his managers, F. M. Roseman & Sons, storing away in the mow the big loads of soft, bright green clover.

"And we made it," replied Mr. Roseman, "by methods that many people consider ruinous to the quality of such hay."

When the grass was ready to cut these farmers went into the fields and hurried the crop into the swath as rapidly as possible Contrary to the usual practice in this section, the hay was not touched with a tedder but was left to wilt undisturbed in the swath. When the grass had wilted as much as it would in this condition, and before the top layers were dry enough for the leaves to shatter off upon stirring, the hay was raked up into small windrows.

Method of Cocking

Shocking began immediately while much of the hay was still quite green. Because it was put up in small bunches, however, curing was rapid, complete and uniform, and no valuable leaves were lots in the process. In addition to this the shocks, when cured, pitched easily at one forkful, and there was no loss of leaves due to tearing the bunches to pieces in getting them on the wagons.

The use of small shocks furthermore decreased the time required for loading and consequently cut down the expense of handling. Where the hauls were of medium length, it was found that one man pitching in the field could keep three wagons busy without working excessively hard.

The Old Idea

That hay, particularly clover, should be shocked in large bunches, carefully built to shed water, is the common argument in the Willamette valley. In this section a heavy rain along about haying time is always possible and quite probable, but frequently does not materialize. When rain does occur, however, the managers of Mission Rose Farm have noted that big shocks do not keep a considerable portion of the hay from getting wet and that it is almost always necessary to stir the piles in order thoroughly to dry the hay again. They have found on the other hand that small shocks, even when practically wet through, will dry out rapidly when the weather clears. The quality, of course, is damaged in either case, but when the bunches are small there is no necessity for tearing them apart, with consequent loss of time and valuable portions of the hay.

Easier to Handle

When curing was complete wagons were put into the field and the hay hauled up to the barn as rapidly as possible. The soft, pliable texture, brought about by shock curing, made unloading easier. The hay hung together better and it was found that big loads could be stowed away in the barn in four or five forkfuls.

This hay is now being fed to the dairy herd on the ranch. It is coming out of storage still soft, bright and palatable, and is being consumed with a relish which shows results in the milk records.

Properly Cured Hay

The soft, pliable texture made it possible to unload a rack in four or five forkfuls.

Single Tax Debate—North's Argument

(Continued from Page 30)

farming; abolish city slums; end high interest, usury, mortgage-foreclosing and land speculation; lower rent and make it easier for everybody to have his own home without a mortgage; untax labor, crops, stock, furniture, automobiles, houses, buildings and all useful business; tax the idle acres and the big downtown land values; throw the tax burden on privilege, monopoly and speculation; invite factories and new business enterprises; discourage idleness and reward useful work; give the returning soldier the choice of a city job at good wages or a farm close to town; speed up production to feed and equip the Allies and win the war; make California first in Patriotism, Population and Prosperity; bring about the development of the State's inexhaustible idle resources BY THE PEOPLE AND FOR THE PEOPLE.

The World War and the Schools

What amounts practically to the militarization of the colleges into the machinery of the War Department is the measure now in effect. As a means of insuring the continuance of higher education and at the same time satisfying the patriotic desire of the younger men to serve the country, the movement appears to be a master stroke. It should assist in solving the requirements of the army for technically trained men while at the same time creating a vast army of reserves under Government orders and capable of being transferred at any moment to active duty. The Government is making plans for a war of indefinite length. Thousands of youths all over the country are taking advantage of this unusual opportunity.

FULL POWER ON TURNS

BECAUSE OF THE SINGLE TRACK.

Will the tractor you buy turn in a 10-foot circle (5-foot radius) **pulling as strong on the short turns as on the straight away**—and will it do that without **slipping one side or one wheel?** That's of vital importance! Many tractors work well when pulling **straight**—it's on the turns that you get **good or poor** service from your tractor.

The Bean TrackPULL Tractor is the only small **orchard-and-vineyard** tractor made that delivers **full power** on short turns and it turns without slipping one side, pivoting, or doing anything else that a tractor shouldn't do.

Many tractors will **turn themselves** around all right, but the tractor you need, whether in **orchard, vineyard or field work,** must take the **tools around** too and keep them **at work** all the way around. This requires **full power** on the turns.

This remarkable machine is built on patented FRONT-DRIVE principle — you steer with the single track which does all the pulling whichever way you go. You can turn within the same row (see illustration above) **without lifting out the tools,** making as short a turn as with a team!

Absolutely no other tractor acts so like a team while doing three times as much, is so handy, so efficient, so staunch, and so **protected against over-strains!**

You'll want the Bean TrackPULL eventually. Send coupon at once for catalog, complete description, and name of nearest demonstrating agent.

Don't buy a tractor that does less. Don't do without one that does so much.

BEAN TrackPULL TRACTOR

New Features in 1919 Model

1. Motor—Improved oiling system; improved carburetor control, governor equipped.
2. Track Rollers—Provided with hardened steel thrust washers.
3. Drive Sprocket—Solid steel ring, machine cut, hardened and heat treated assures long service.
4. Bearings—Provided with improved dust-protected greasing facilities.
5. Rear Wheels—Provided with dust cap, wear-resisting bushings and improved greasing facilities.

With Invaluable Patented Front Drive.

Don't buy a tractor until you have mailed the coupon.

Bean Spray Pump Co., Dept. C-10, 231 W. Julian St., San Jose, Cal. 131 N. L. A. St., Los Angeles, Cal. Send me catalog and full information without obligation on my part.

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Street .....
City .....
County..... State.....
No. of acres.....
Kind of crops grown.....

IF you're interested in dairy cattle — if you want to see representative types of every breed — if you enjoy *real* competition in the show ring with judging done by men of national repute—then, by all means, attend the California International Livestock Show.

Remember—the dairy exhibit is only *one* of the big features: There will be equally strong showings of Beef Cattle, Horses, Sheep, Swine, Poultry, etc.

And besides — there will be a daily Horse Show at night, featuring the finest aggregation of high-school horses ever assembled on the Pacific Coast.

$38,000 in premiums. Plenty of education and amusement. Be sure to come! You'll be welcome!

Special low railroad rates from all points.

For detailed information write Joseph E. Painter, Manager, 1205 Merchants Exchange, San Francisco

Entries positively close Oct. 5th. Make your entries NOW!

(1)

CALIFORNIA INTERNATIONAL LIVESTOCK SHOW

SAN FRANCISCO - NOV. 2-10, 1918

The Home Flower Garden

By Mrs. E. E. Paquette
1118 Polli Street, Ventura, Cal.

How to Manage Bulbs

OCTOBER and bulbs; bulbs and October. Each brings thoughts of the other. I can shut my eyes and see the flower lovers the world over this month looking over their bulbs. I imagine that I can smell the brown paper bags in which the bulbs are shipped, and feel the buckwheat hulls in which they are packed. And in my own mind I can see the visions that each gardener sees as he sorts over his bulbs and prepares to consign them to mother earth. Is not a bulb a wonderful thing? There are the Tulip bulbs, brown and round and glossy; in each there is a wonderful flower of white, red, scarlet or gold. Yet nobody can tell from the looks of the bulb what color flower is hidden in its heart.

Then there are the hyacinths "Look as though they would make good salad," you say? Yes, they do resemble onions. But just bury them away, and let them develop roots to draw food up out of the soil. Then Mother Nature warms the soil in the spring, and the bulbs wake up and send out wonderful spikes of living, tinted, waxen bells.

Dutch Bulbs Limited

We will not get our usual lot of bulbs from Holland this year—although we will have some. But the ships are needed to carry soldiers and food, and these must come first. There are several fine growers, however, here in the United States. In fact, it has been discovered that California soil is well suited for bulb culture and some of our growers are sending out a wonderful product. Therefore, in spite of curtailed imports, we need not do without our bulbs this winter.

Many people think the so-called Dutch bulbs are natives of Holland, but they are not. They are grown in Holland because the soil there is almost pure sand and there is always water just a short distance below the surface, making them safe from drouths. The climate is also remarkably favorable for the growing of this class of bulbs. Some of our most gorgeous Narcissi, however, are natives of the hills of Italy, and in their native state are small, greenish-yellow and very indifferent in appearance. But when taken up and imported to Holland, they develop size and color under the intensive Dutch cultivating methods.

Soil and Culture

Notice I said "Culture" not Kultur, for the flowers we are going to grow are Dutch, not German bulbs. For garden planting any good, well-drained soil will do. But it is really better to begin a month before-hand to prepare your bulb beds. Well rotted stable manure should be spread over the beds and the ground spaded and respaded and spaded again!

There is one thing you must remember about bulbs: Hyacinths need to be planted deep and tulips even deeper. In the eastern and northern States the cold winter keeps the bulbs asleep until the roots have developed to feed them. But here in California the warm sun is shining all winter, and the bulbs have a way of wanting to wake up and come peeping through their cover before the proper time. In that case they are like poorly nourished children.

The above directions do not apply to Narcissi and Jonquils. The largest of these bulbs should not be planted more than three inches deep. They seem to be wise enough to "stay put" until it is time for them to wake up. And here is another thing about bulbs: They should be planted where the water will not stand around them. I make the row, and then in the bottom of the row I put a good deep layer of sand, setting the bulbs on the sand. To grow them in water, put the bulbs in a shallow bowl and keep in place with pebbles packed around them, or place in the regular Hyacinth glasses. If they are grown in a bowl, it is best to keep the bottom of the bulbs just above water; bits of charcoal will help to keep the water sweet.

Potting the Bulbs

For potting I use the regular potting soil; that is, one-third rotted manure, one-third garden soil and one-third leaf-mold, and then add some sand for good measure. One bulb is put in a four-inch pot, or three of the largest in a six-inch pot. In water or pot culture be sure and keep in a dark cool place until the bulbs make good roots.

There are good commercial fertilizers for bulbs, but if it is possible to get it I would use the old, rotted manure, spaded into the soil before planting. Then later put on a good heavy mulch. If a commercial fertilizer is needed, the kind used for potatoes is considered best for bulbs.

Shrubs and Trees

Have you enough good shrubs in your garden? If not, this is the best time of all the year for planting. And how about trees? Go back away from your house and gardens and observe them carefully. See if you don't think you need another tree, not too close to the house (for near the coast, especially, we need the sunshine) but near enough to break any bare vista. There is an old saying that a garden without evergreens is like a home without a dog, and I do love evergreens in the garden. October is the best month to plant evergreens, as well as ornamentals and shrubs. Trees planted at this season have time to become established and to start new feeder roots before the spring growth commences. If you are intending to plant out a hedge of any kind, now is the best time to do it.

Autumn and Roses

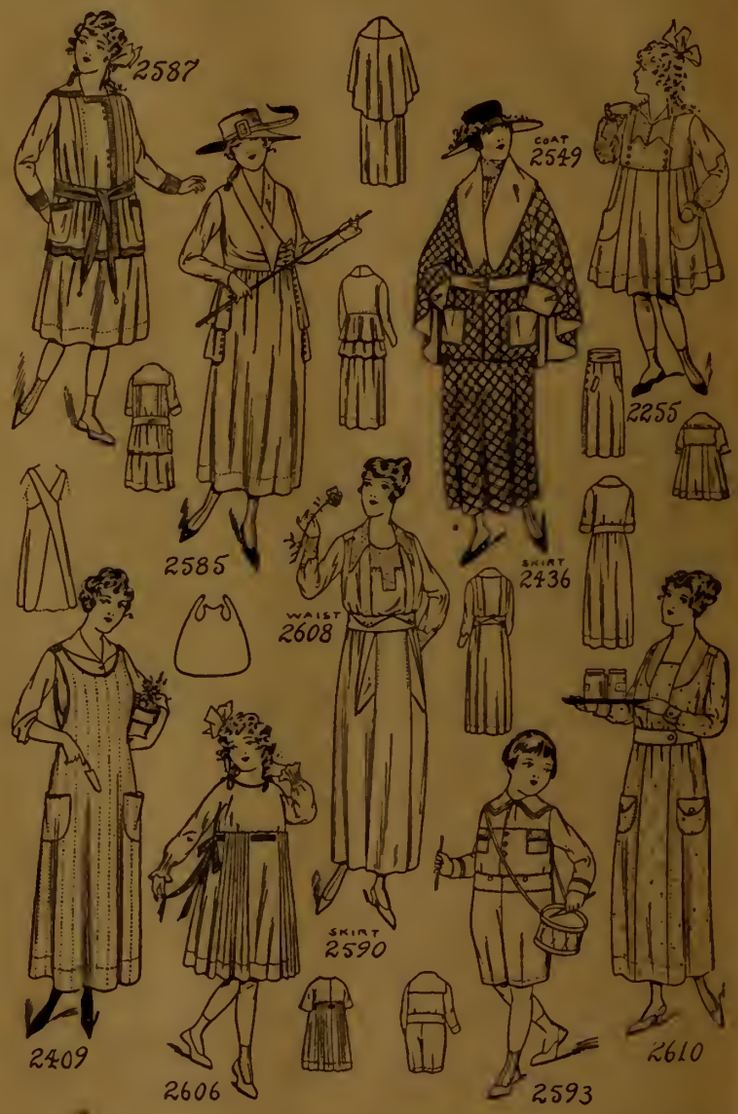
This is the month when we give our roses the heaviest pruning of the year. If you have done as you should, you have let them go without water for the last two months and they are dormant. It is time now to prune out all small growth and all old, half-dead wood, and to cut back the tallest canes. Leave the good, plump, well-ripened canes with good healthy eyes of this last season's growth. And whatever you do when pruning, leave the center of the bush open. Go over your bushes carefully and if there is any white scale or rust, pick off the affected leaves and burn them. Then spray or wash well with a good resin wash, or with a lime and sulphur wash. Now give the beds a heavy mulching of manure, and flood them with water.

Either arrange the beds so that you can dam up around the edges and flood them, or turn the hose on in a good spray and let them soak for hours, until the water has had time to reach the lowest roots. In a short time the new growth will begin to start. You will be well repaid for any time spent with this queen of all flowers.

Pretty Costumes

Selected by Isabel Sinclair

These costumes are all carefully chosen with a view to their adaptability to the needs of the home dressmaker. None is elaborate or complex and all can easily be made from the patterns provided by this department. To get any of the patterns send ten cents in silver or stamps to Pattern Department, Orchard and Farm, Examiner Building, Los Angeles.



2587—Girls' Dress

Cut in 4 sizes: 8, 10, 12 and 14 years. Size 12 requires 4½ yards of 40-inch material. Price, 10 cents.

2585—A Smart Dress

Cut in 3 sizes: 16, 18 and 20 years. Size 18 requires 5⅞ yards of 40-inch material. The skirt measures about 1⅞ yards at the foot. Price, 10 cents.

2549-2436—Ladies' Suit

Cape-Coat 2549 cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. Size Medium requires 5¼ yards of 44-inch material. Skirt 2436 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. Size 24 requires 2¾ yards of 44-inch material. It measures 1⅞ yards at the foot. Two separate patterns, 10 cents for each pattern.

2255—Girls' Dress

Cut in 4 sizes: 4, 6, 8 and 10 years. Size 6 requires 1¼ yards for the guimpe and 3¾ yards for the dress, of 27-inch material. Price, 10 cents.

2409—Ladies' Apron

Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. Size Medium requires 3¾ yards of 36-inch material. Price, 10 cents.

2606—Girls' Dress

Cut in 4 sizes: 4, 6, 8 and 10 years. Size 8 requires 3 yards of 36-inch material. Price, 10 cents.

2608-2590—Ladies' Costume

Waist 2608 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 2590 is cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. A medium size will require 6¾ yards of 44-inch material. Skirt measures 2¼ yards at the foot. Two separate patterns, 10 cents for each pattern.

2593—Boys' Blouse Suit

Cut in 4 sizes: 2, 3, 4 and 5 years. Size 4 will require 2¾ yards of 40-inch material. Price, 10 cents.

2610—Ladies' House Dress

Cut in 7 sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure Size 38 requires 4⅞ yards of 44-inch material. The dress measures about 2¼ yards at the foot. Price, 10 cents.

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Harvesting Walnuts

By Howard Bagley

RIGHT and wrong methods of procedure in gathering, hulling and curing walnuts have a big influence on the size of the check that the grower receives when the returns come in and the credit slips are cashed

By trying to economize during the harvest, or by rushing uncured nuts to the packing house in order to gain the advantage of a little weight on account of moisture in the shells, a grower can beat himself out of a great deal of money. In the long run it pays to be painstaking about the harvest, and to deal freely and above board with the packing and marketing associations. I speak from years of observation and experience; the lessons I have learned should be of value to other growers.

Time to Harvest

As soon as you have reason to believe that the nuts are mature, begin gathering them. You may experience difficulty in getting pickers to begin the harvest early. They had rather wait till the ground is strewn with nuts; the picking is easier then. It will pay you to give the pickers a better wage and have them begin an early harvest, because if the nuts are allowed to lie on the ground too long they will become stained and will be lost under the leaves. It will cost considerable to hull and bleach them in that condition.

After making an early start, skim the grove at least every tenth day during the picking season. Some growers use cane poles to knock the nuts off, but this is not a good practice, because the "poling" injuries the spurs upon which the nuts will grow during the next season. The best way to rattle off the nuts is to shake the trees. Use a long pole with a hook at one end of it; this will not injure the fruit spurs and it will rattle down all the nuts that are ready to fall. Nuts that are shaken down will "shuck" cleaner and better, because they will not have been long in contact with the ground.

Shaking trees is furthermore a good idea because nuts that ought to fall are often inclined to cling to the trees and they sometimes remain there until the hull dries on them, or they become weather-stained.

Hulling the Nuts

Some growers make a practice of rubbing walnuts together in sacks to remove tight shucks. This is a bad method, because it breaks many of the nuts and stains most of them badly. A better way is to run them through a hulling machine. They can then be bleached with more satisfactory results

The washing process takes the dirt from the nuts, but more or less water gets inside the shells and damages the meats.

After washing the nuts, spread them out in trays where they will be in the shade. If they are placed in the sun while wet, a great many of the nuts will pop open, and after that they will rattle open in great numbers when handled. Let the surface moisture dry off while the nuts are on trays in the shade. The trays should be about three feet wide, eight feet long and four inches deep. They ought to rest upon supports about two feet above ground to permit of free circulation of air, which will dry the nuts and cure them even though they are four inches deep in the trays.

Care in Curing

Left in the sun for three or four days and stacked one tray upon another for a week the nuts ought to cure splendidly. If they are rushed to the packers before being thoroughly cured they are almost sure to be moldy or otherwise damaged when they reach the market, and the get-rich-quick scheme will rebound, sometimes not only diminishing returns, but hurting the salability of some well-established brand

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Pulled oak stumps up to 38 in., pine stumps up to 24 in., in "Pipe Clay"—one had tap root 12 ft. long, and still I did not stall my Kirstin. —Titus E. Cheppell, Tyner, Chowan Co., North Carolina.

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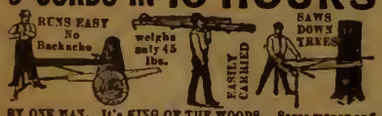

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FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS," AT ORLAND, CAL.; WATER FURNISHED BY UNCLE SAM; WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS; NO BETTER SOIL FOR ALFALA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET, "ORLAND FARMS."
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DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents, for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Tex.

I HAVE 800 acres in the foothills of the Sierras. Wonderful soil and climate, mostly brush; forty acres clear and partly planted with young trees. I want partner who can put his or her soul into the enterprise; experienced woman preferred. Time and $6000.00 necessary to make quick money in hogs and goats. Address Box 833, Orchard and Farm, Examiner Building, Los Angeles, Cal.

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FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information, address A. J. Smith, Groveland, Tuolumne County, California.

BARGAIN SALE—12 acres apples (Gravensteins, etc.); ½ acre cherries; interplanted berries. Ideal location. Sonoma County. Must sell. O. F. Hawkins, owner, Westwood, Cal.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

FREE list farms, farm and stock ranches, Sonoma and Mendocino counties; Russian River section. Miller & Cobbi, Inc., Healdsburg, Cal.

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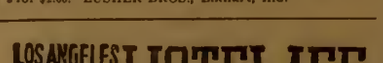

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Apply Children's Home Society, 2414 Griffith avenue, Los Angeles, Calif.

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WILL BUY OR RENT 100 fresh or coming fresh milch cows. Address 1112 Merchants' National Bank Bldg., 6[illegible] Market street, San Francisco, with full particulars.

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FALL CHICKS FOR SALE—400,000 S. C. White Leghorn chicks from free range Hoganized stock only, for delivery from July to December, at very reasonable prices. Fall chicks are most profitable—broilers in ten weeks, pullets lay at five months. We guarantee safe delivery of all chicks to destination. Shipped safely anywhere west of the Rockies. No money in advance, pay on delivery. Special prices on 500 and 1000 lots. Finest hatchery in the world. Established over twenty years. Further information write Must Hatch Incubator Company, 423 Seventh street, Petaluma, Cal.

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POULTRY

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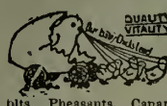

All the popular breeds EVERY DAY. PULLETS—All breeds from BEST egg-producing strains. Rabbits. Pheasants. Canaries, Cats, Dogs. Write for price list. We ship everywhere. EVERYTHING IN HAIR, FUR AND FEATHERS.
FANCIERS' EXCHANGE, 640 South Main St.

FEED HIGH; Eggs, Meat Higher. Our 200-290 egg Leghorns, Anconas, Reds, Rocks, Wyandottes, Minorcas, Ducks are more profitable now, clearing $5.00. Some greatest government trapnested hens, 280-283. Hundreds breeders, laying, younger pullets; thousands chicks weekly; reasonable, fine males, $2.00 up, worth treble. W. Beeson, Pasadena, California.

LUMBER—Building Material

EVERYTHING FOR THE BUILDER — All kinds of second-hand building material; doors, windows, lumber, shingles, corrugated iron, cement trays at the lowest prices, send list and get estimate; country orders and carload lots a specialty. H. McKevitt & Son, Wreckers, 1849 Mission street, near 14th, San Francisco, Cal.

LUMBER BARGAINS for poultry men and farmers. Woodhead Lumber Co., 5800 South Main street, Los Angeles, Cal.

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WANTED—A good live boy or girl in each territory to handle the agency for Orchard and Farm; good money to the right party and a good growing business; costs nothing to secure full details. Address department P, Orchard and Farm, P. O. Box 136, Los Angeles, Cal.

ASSAYERS AND GOLD BUYERS

GOLD, amalgam, rich ore bought, cash; assaying, 60c. Pioneer Assaying Company, 636 Market street, opposite Palace Hotel, San Francisco, Cal.

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1000 BUSINESS CARDS for $1; letterheads, envelopes, bills, wedding work, show cards, rubber stamps. ROBERT HILL, 2188 Sutter street, San Francisco.

RABBITS AND PIGEONS

"SCIENTIFIC FUR FARMING." A profitable, spare-time business, good for $1500 per year and more. RAISE STOCK FOR US — We buy all you raise. We pay you the highest market prices and furnish perfect breeding stock. GO INTO BUSINESS FOR YOURSELF. Our booklet and details mailed for 10 cents.
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FINE UTILITY New Zealand Red Rabbits. 4 months old, $3.00 ea., $5.50 pr., $8.00 trio. 5 months old, $3.50 ea., $6.50 pr., $9.50 trio. 6 months old, $4.00 ea., $7.50 pr., $11.00 trio. Good, strong healthy stock. Subject to previous sale. Armstrongs Rabbit Yards, Petaluma, Calif.

FOR SALE—RABBITS from registered and Blue Ribbon stock Flemish, New Zealand, Am. Checkered and Belgian; 175 does and 20 bucks. Come and pick your choice; prices right; 75 young does, 3½ to 4½ months at $1.50. N. Z.'s dark red, very fine. R. Daniels, Walnut Creek, Cal.

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RABBITS—Choice young New Zealand Red Breeding Stock for sale. R. C. Specht, Route A, Sonoma, Cal.

MONEY IN RABBITS—Raise rabbits for us. Will pay $6 per pair. Send stamp for reply. H. E. Gibson Co., Arcadia, Cal.

FOR SALE—Rabbits, New Zealand and Flemish Giant. Paul Kruger, Watsonville, California.

GOOD! SATISFIED

A CLASSIFIED AD DID IT

Ashland, Oregon, Sept. 19, 1918.

Orchard and Farm.

As the result of a small ad in Orchard and Farm I have traded my orchard home here in Ashland for a 120-acre farm in the Surprise Valley, Modoc County, and expect to make alfalfa seed my leading crop.

Sincerely yours,
(Signed) O. H. Barnhill.

Mr. Barnhill averaged over $600 an acre from his apple orchard for four years, selling $1007 worth of Spitzenburgs from a single acre of trees one year. When he was ready to expand his operations, he applied the same good business judgment to the selection of an advertising medium that has made it possible for him to achieve success in his farming operations.

Let Orchard and Farm Buy, Sell or Trade for You.
The Cost of a Small Ad Is Ridiculously Low.

LIVESTOCK

I NOW OFFER MY SPRING PIGS, sired by Cook's Hancherdale Jones, a grandson of the famous Gertsdale Jones, and out of big, prolific sows, the best of the "Big Types." Write for prices and further information. J. H. Cook, Paradise, Cal.

FOR SALE—7 head of well broken Norman Horses, weighing from 1500 to 1700 lbs., with harness complete at reasonable prices. Apply or write to L. M. Edwards, Wheatland, Calif.

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LIVESTOCK—Chester Whites

CHESTER WHITES—The BILIKEN brand. Say! Listen! Are you going to feed a boar this fall? Better buy him now. Have a dandy lot to select from that are low priced enough to move rapidly. Few bred sows left to farrow during October. Just a very few weaned boar pigs. Open fall gilts. Special October prices. Write for them. C. B. Cunningham, Mills, Cal.

LIVESTOCK—Sheep, Milch Goats

D. E. KELLIHER—Importer and breeder of Hampshire sheep, Eugene, California, offers for sale a choice lot of yearling Hampshire rams sired by Walnut Hall and Butterfield rams purchased at Salt Lake August, 1916. Inspection and correspondence invited.

TOGGENBURG GOATS — Edwin Pritchett, Mojave, Cal. Enclose stamp.

LIVESTOCK—Poland Chinas

HEWITT'S BIG TYPE POLAND CHINAS—Bred sows and gilts. Hewitt & Hewitt, Dixon, Cal.

LIVESTOCK—Duroc Jerseys

DUROC-JERSEY BOARS, both weanlings and old enough for service. Prices right. Breeding and satisfaction guaranteed. H. E. Boudler, Napa, Cal.

BIG TYPE Duroc Jersey Boars and Gilts. Geo. DeBok, Oregon City, Ore.

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FORDS START EASY IN COLD WEATHER with our new 1919 carburetors; 34 miles per gallon; use cheapest gasoline, distillate or half kerosene; increased power; styles for any motor; very slow on high. Attach it yourself. BIG profits to agents. Money back guarantee; 30 days' trial. Air-Friction Carburetor Co., 325 Madison, Dayton, Ohio.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. SAMPLES and slightly used. Four floors Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC
The Yellow Front. Established 1892.
112-118 South Los Angeles St.,
Los Angeles, Cal.

FARM TRACTORS, MACHINERY

IDEAL HOIST FOR UNLOADING HAY, driving fence posts, stretching fences, erecting buildings and numerous other purposes around the farm. Inexpensive, great labor saver. Send for pamphlet. U. S. Iron Works, Seattle, Wash.

WANTED Second hand or new tractor attachment for Ford. Give details and bottom price. H. Schoening, Bay Point, California.

ENGINES

SEVERAL NEW AND SLIGHTLY USED ENGINES. ARNOTT & CO., Implements 112 South Los Angeles st., Los Angeles.

—here's something that will wake 'em up!

It is easy enough to produce eggs in the spring; but in the fall and winter, when prices are highest—ah! that's a different story.

And yet—hens are pretty much like the rest of us: they have to be fed into action. They won't stir until you stir them up; and the biggest single help you have is Surelay.

No matter what results you may have secured heretofore—no matter how disappointed in the egg foods you may have tried—you owe it to yourself, your flock, and your profits, to use Surelay.

Surelay is a perfect balanced ration—nothing less! Its function is to give your hens the exact ingredients they need to bring about the greatest egg-production in the most natural way. Now then—

The elements of an egg are derived from so many sources that no single food will answer the purpose. This is why Surelay contains sixteen separate ingredients, blended and mixed more skillfully than can possibly be done by hand. Another thing—Surelay is always the same. Each sack must measure up to a definite standard of uniformity—or else it cannot be Surelay.

The formula that has made Surelay a prime favorite among successful poultrymen is no secret. You have a right to know what you are feeding your flock; and the manufacturers of Surelay recognize this by printing, on the back of each sack, its exact analysis.

Remember this: when it comes to a uniform, high-grade feed that will rouse your flock into a sense of duty—that will prod your hens into profit-producing—Surelay rings the bell and taps the gong every time. That's why poultrymen who know are quite frank to acknowledge that "Surelay is sure some stem-winder!"

[Be sure to look in your Surelay sack for the Certificate that entitles you to our 1919 Surelay Egg Record and Calendar]

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SPERRY FLOUR CO.

STOCKTON, CALIFORNIA

Stock and Poultry Food Department,
SPERRY FLOUR CO.,
160 Weber Ave., Stockton, California.

Gentlemen:

If your handbook—"Makes Hens Happy"—will help me increase my poultry profits, I want to have it. So—please send me a copy today, without charge

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SURELAY

"A Sperry Product"

November, 1918 A New $5,000,000 Fruit Industry for California! 10c Per Copy

ORCHARD and FARM

ESTABLISHED 1888

Reclaimed Farms for Fighters

Climax and Conclusion of the Whirlwind Single Tax Debate

The Winchester pattern. 320 pellets out of a possible 431, or 74 per cent of the shot charge, evenly distributed. No birds get through.

A quick eye and a good shot pattern

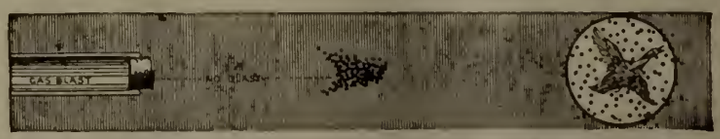
A QUICK eye and a good shot pattern, that's the game-getting combination. Given an old-timer with a reliable gun in his hand and the rest of the story is up to the shot pattern.

Now the secret of good patterns is in the control of the gas blast from the exploding powder. This in turn depends upon the *wadding* in the shell.

The wadding, like the piston head of a gas engine, must give the explosion something solid to work against so that the shot may be *pushed* out evenly.

It must expand and fill the tube of the barrel, completely sealing in the gas behind it. No gas must escape to scatter the shot.

It must offer just the right amount of resistance to the explosion so as to develop uniform pressure and high velocity without danger of jamming the pellets out of shape at the "choke" or muzzle constriction.



The Winchester system of wadding. The wadding expands evenly, sealing in the gas blast all the way to the muzzle, where the wadding is checked by the "choke" or constriction. The shot cluster travels on ahead unbroken. Actual test target 320 pellets out of 431, or 74% of the shot charge (1¼ oz. of 7½ chilled) inside a 30-inch circle at 40 yards.

The Winchester System

Winchester Wadding is the result of repeated experiments to determine the most efficient control of the gas blast.

The special construction of the *Base Wad* gives what is known as *Progressive Combustion* to the powder charge.

Combustion spreads instantly through the powder charge. By the time the top grains of powder become ignited the *full* energy of the burning powder behind is at work. Though the explosion is almost instantaneous, it is none the less *progressive*, the final energy and maximum *velocity* of the completely burned powder being developed at the *muzzle* where it is most needed.

Meanwhile, under the heat and pressure of combustion, the tough, springy *Driving Wad* has expanded to fill the barrel snugly all around. No gas escapes. It is completely sealed in. The wadding *pushes* the shot evenly.

At the muzzle, the shot pellets slip out without jamming, while the wadding is checked for a brief interval by the constriction of the muzzle. *It follows some distance behind the shot pattern.*

The shot cluster travels on unbroken by gas blast or wadding and makes the hard-hitting, uniform pattern for which Winchester shot shells are world famous.

Fish-Tail Flash. All Winchester smokeless shells are made with the new Winchester Primer—the quickest and most powerful shot shell primer made. Its broad *fish-tail* flash gives even and thorough ignition. Every grain of powder is completely burned up before the shot charge leaves the muzzle.

The Crimp. The required degree of pressure necessary in seating the driving wads is worked out in combination with the *hardness* or the *softness* of the *crimping* required for any particular shell.

Waterproofing and Lubrication. In the cold, damp air of the marshes, or under the blazing sun at the traps, Winchester shells will always play true. Winchester waterproofing process prevents them from swelling from dampness. Special lubrication of the paper fibers prevents brittleness and splitting in dry weather.

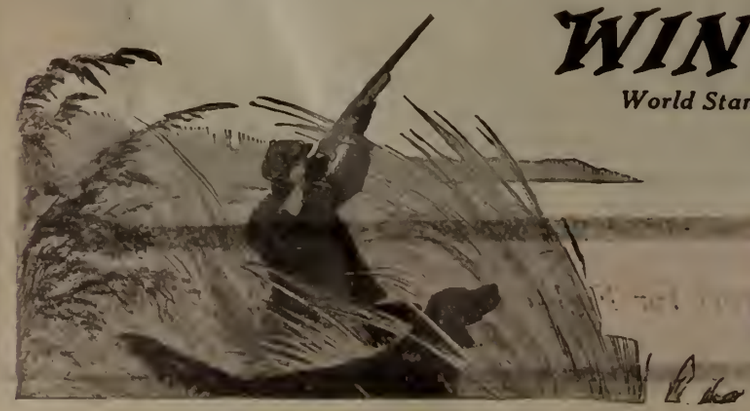
Uniform Shells. From primer to crimp, Winchester shells are constructed to insure the maximum pattern possible from any load and under all conditions. 25,000,000 rounds of ammunition are fired every year in testing Winchester guns and ammunition. $100,000 is spent annually in the inspection and testing of finished shot shells alone.

Clean hits and more of them

To insure more hits and cleaner hits in the field or at the traps be sure your shells are Winchester Leader and Repeater for Smokeless, Nublack and New Rival for Black Powder. Write for our Free Booklet on Shells. **Winchester Repeating Arms Co., Dept. WK-31, New Haven, Conn., U. S. A.**

WINCHESTER

World Standard Guns and Ammunition



ORCHARD and FARM

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Subscriptions 50 cents per year, or three years one dollar. To Canada or in City of Los Angeles, 75 cents per year. Foreign 86 cents per year. Concise contributions on practical agricultural subjects are invited. Unavailable manuscript will be promptly returned if postage is enclosed. Preference is given to accounts of actual experience, telling why, how, when, where, who and how much. Entered as second-class matter at the Postoffice of Los Angeles, Cal., under the Act of Congress of March 3, 1879.

Eastern Office
Roy Barnhill, Inc.,
East 26th Street,
New York, N. Y.

Work and Homes for Our Fighting Men

COMING at a time when Victory is in sight and the problem of providing opportunities for our returning soldiers an imminent one, this inspiring article which Secretary Lane has prepared for the big Orchard and Farm family is of extraordinary interest. His plan for helping the soldiers to help themselves and at the same time add billions of dollars to the wealth of the Nation, is one of biggest, broadest, most far-sighted projects conceived by any of our national leaders, and deserves the earnest consideration of every wide-awake, progressive American. The carrying out of his scheme will add millions of dollars to the wealth of the West alone, and fulfill, insofar as is possible, the great obligation which the country owes to her valiant fighting men.—Editor's note.

By Hon. Franklin K. Lane

Secretary of the Interior

Written Especially for Orchard and Farm

THE people of the United States have been called the most wasteful nation on earth. Where other nations conserve we have been in the habit of throwing away in the large, free handed, distinctively American way. That "a European family could live on what an American family throws away," has been a by-word for years. But this situation is rapidly changing. The war has brought home plainly to the Nation as a whole the fact that thrift and economy are essential elements of success. Hoover and Garfield have preached the gospel of the clean plate and the conservation of fuel. The War Industries Board has promulgated conservation regulations ranging from the height of women's shoes to the number of kinds of steel pens that may be manufactured. Everywhere economy, thrift, and conservation are being taught to the people through the newspapers, by special articles, by billboards and posters.

It is not surprising, then, that the greatest waste of all—our unused and unproductive land—should be claiming the attention of the leaders of the Nation. It is no longer possible, as it was fifty years ago, for a pioneer to strike out into the wilderness, locate a homestead, and "grow up with the country." Our homestead lands are practically all taken, and yet the land-hunger of our people is unabated. Hon. Clay Tallman, Commissioner of the General Land Office, in an address given at the Cut-Over Land Conference of the South, held in New Orleans in April, 1917, portrayed graphically this land-hunger as evidenced by the competition at every recent opening of Western public land, no matter how rough and forbidding the offerings, and pointed out the fact that the cut-over and swamp lands are the last cheap agricultural lands remaining in the country.

Satisfying Land-Hunger

In addition to satisfying this land-hunger of our people, there is a vital economic necessity of stimulating the "back to the land" movement and stemming the tide which for several decades past has flowed in ever-increasing streams from the country to the city. In a recent address before the regional chairman of the Highways Transport Committee of the Council of National Defense, Mr. Hoover brought out very forcibly the fact that Europe will face a food shortage for years after peace is achieved and that for ten years after the close of the war the productivity of the United States will be called upon to supply the necessary food-stuffs to the millions of hungry people in foreign countries. Can the United States meet these various demands of its own citizens and of its allies? There is every reason to believe that we can and will.

Millions of Idle Acres

No complete survey of our land resources has ever been made. It is known, however, in a general way, that lying in the so-called arid and semi-arid States of the West there is approximately 15,000,000 acres of land, barren and unproductive, covered with sagebrush or mesquite, the home of the prairie dog and the jack rabbit, which can be made as productive as any agricultural land in the world if supplied with water. According to the census of 1910, about 14,000,000 acres was irrigated in 1909 by United States Reclamation Service enterprises, United States Indian Service enterprises, Carey Act enterprises, irrigation districts, co-operative enterprises, individual and partnership enterprises, and commercial enterprises. The 15,000,000 acres remaining represent projects which, because of difficulties of construction and vast expenditures demanded, do not attract private capital. They must be constructed, if constructed at all, by the Federal Government or the Federal Government in co-operation with the States.

Similarly, in the eastern half of the United States are vast areas of cut-over or logged-off timber land, the former sies of great forests, but now an almost hopeless tangle of underbrush and stumps. As a whole, these areas comprise approximately 200,000,000 acres of land, which, if cleared of stumps and brush, leveled, and brought under the plow, will rival in productivity our most favored agricultural land. Except in a few isolated cases, these waste lands have so far baffled private enterprise because of the difficulties and expense of reclaiming them.

Lying largely in the South and overlapping the cut-over lands to some extent is from seventy to eighty million acres of swamp land, mosquito-infested and fever-ridden. Private enterprise has demonstrated on a small scale even in these forbidding haunts of the copperhead that such lands, when properly drained and cleared of their valuable timber, are exceptionally fertile.

National Carelessness

Here, then, is some 250,000,000 acres of at present unusued and totally unproductive land, capable of producing crops valued at billions of dollars and supporting millions of people, lying idle, the greatest example in present-day history of a Nation's

(Continued on Page 7)

A LULL in the fighting. For the moment the tension slackens and danger and discomfort are forgotten. He commences a letter to her. Then a far-away look comes into his eyes; he tries to look down the road that leads into his future "back home." **Will his dream come true?**

He is your boy and my boy—a dare-devil, big hearted, fire-eating, homesick doughboy, who has gone through Hell for you and for me. What are we going to do for him when he returns, victorious? Shall we take away his uniform and gun and say, "Much obliged, now rustle a job," or shall we give him a boost that has no taint of charity, and a chance to make a home by honest, self-respecting toil? Will he have dreamed in vain? Remember we can never pay our debt to him. 'For he gave his all that freedom might not perish from the earth'"

All About Lumber

A Useful Publication

THAT farmers in California might use satisfactory and low-priced lumber substitutes for the construction of farm buildings, and that white fir and western hemlock now little in use, might be profitably employed by proper utilization, are the important statements of a recently published bulletin on the use of lumber on California farms, issued by the College of Agriculture, Berkeley. The purpose of this bulletin is to inform State farmers regarding the properties of different woods available, their relative suitability for various farm purposes, and the correct use of short lengths and low grades of woods.

The circular also contains a simple key to the identification of common woods, with cuts and a detailed description of grades aimed to enable the farmer to order a bill of lumber and satisfy himself that he is receiving the species and grade desired. "The Use of Lumber on California Farms" may be secured free by writing to the director of the Agricultural Experiment Station, University of California, Berkeley.

Let Us Burn Wood

FARMERS throughout the country are urged to use more wood and less coal for fuel this winter. Wood may be used in coal-burning stoves in two ways: (1) by mixing it with the coal and, (2) by partially covering the grate with sheet iron or fire bricks to reduce the draft.

When using coal and wood together, good results may be had by putting in chunks of wood first and then covering them with coal. The fire will need somewhat more attention than if coal alone is burned, and the check-damper in the smoke pipe should be kept open wider, as less chimney draft is needed than for coal. coal.

The Best Woods

Those who use dry eucalyptus wood in California will be entitled to additional credit for patriotism, because of its rapid burning qualities. There is no doubt, however, that much more might be utilized this winter than formerly. Woods believed to have the highest fuel value are listed as hickory, oak, beech, hard maple, birch, cherry, ash, longleaf pine, locust and mountain mahogany. One cord of any of these when dry and seasoned has been found to be equal in fuel value to one ton of coal.

Custom Work Pays

The "buzz" saw and gas engine have already largely displaced the back-breaking buck-saw and many farmers are using small tractors for running wood saws. A drag saw in the wood lot and a circular saw at the wood pile make a winning combination, when backed up by husky arms and a sharp ax for splitting. The small investment required for the purchase of an outfit of sufficient size for custom service makes this phase of the subject an interesting one in view of the demand that may be anticipated. Many outfits made good money last winter sawing wood for neighbors by the cord, finding enough work to keep them busy during the greater part of the rainy season. One man in Riverside county paid for his machine by his first season's custom work.

New Ideas in Pear Growing

By Burle J. Jones

940 boxes of pears from 374 trees, or an average of 2.51 boxes per tree is the yield secured this year by W. A. Caldwell of Camino, El Dorado county, California, from his five-year-old orchard. One of the best trees bore 650 fruits, weighing 201 pounds. How Mr. Caldwell achieved this success on very poor land by methods revolutionary in character, is related in an instructive manner by Farm Adviser Jones of El Dorado county.

ALTHOUGH his neighbors at first derived considerable amusement from his methods and ideas, W. A. Caldwell of Camino, has recently completed a harvest of Bartlett pears which he believes challenges the world for high production. The erstwhile humorists, needless to say, have begun to "sit up and take notice."

Mr. Caldwell planted his orchard in 1913 and even his best friends admitted that he had committed the folly of a lifetime. His place is situated on the very top of the Camino Ridge adjacent to the State Highway which leads to Lake Tahoe, and overlooks the little lumber town of Camino. Incidentally, the high Sierras, the Sacramento valley, Mount Diablo and the cities of Sacramento and Stockton are visible from the ranch and go to make up a huge panaroma that is "high, wide and handsome." But the soil he selected had been farmed since the trek of California caravans to the Comstock Lode, and was as poor as a church mouse.

Not heeding the calamity howlers, however, this aspiring orchardist from Indiana began the practice of using winter cover crops. Later he collaborated with Schacppi and Phraener of the famous Boa Vista orchard (which won the State prize for production of potatoes and captured the gold medal for spuds at the Panama Exposition), and interplanted his orchard with potatoes, for the growth of which he applied considerable amounts of complete fertilizer.

New Cover-Crop Methods

Recently, since the trees have become too large for successful intercropping, Mr. Caldwell has adopted a sort of peremial cover crop. This is handled somewhat as follows: A combination of vetch and rye is planted in the fall and allowed to remain throughout the winter and following summer This year a good crop of hay was cut from it in early July to help feed the farm livestock. The vetch then went forward with a second growth, casting a liberal amount of matured seed on the ground by September 15th. Rye has been added and the whole plowed under, to-

(Continued on Page 31)

THE TRACTOR SPEAKS

By Jason Wells

FOR centuries and aeons, my caged spirit, frenzied, fought for liberty. Straining at my leash, I saw mere man, groping blindly towards the light, bring weak, unwilling animals into slavery and force them to draw the awkward tools with which he scratched the surface of the earth. Chafing and helpless, I who knew my power awaited man's discovery of the combination which should unlock my cell.

And then, Eureka! came my day; Alladin-like, he rubbed the lamp which set me free. Eagerly, with deep staccato roar, I sprang forth to my work. Stronger than twenty horses, yet meekly responsive to the guiding hand upon my straining wheel, I tore deeply into the hard, unyielding soil, baring for my master hidden treasure.

Genie of the farm, I work, and willingly, for the sake of being free, and ask no favor but good care. Mine the joy of vibrant throbbing power, of fragrant fields, of difficult tasks well done; mine the satisfaction of transforming desert wastes into deep-tilled oases of verdant green; mine the rich reward of giving food to freedom's valiant sons; mine the peace that only helpful service brings.

And so am I content to work for him who set me free Yet, deep in my proud heart, I know that I am not the mere conception of his brain, nor yet his chattel. For am I not a child of Nature, part and parcel of God's wondrous scheme? My metals are the flesh and bones of Mother Earth, who bares her bosom to my pointed plows that man may live. The Genie of the Lightning sent the quick, hot spark that drives my pulsing pistons.

And should Nature, wronged, withhold the precious fluid of her breasts, then the very blood which courses through my veins; the food that gives me energy; the fountain of my life, would be no more, and I would lie helpless, inert—a rusting carcass in the field. But now I live; I tremble in my eagerness to toil! Open wide the throttle that I may unlock the soil!

The Log Dwelling

How to Rebuild It

AMERICA may well be proud of her lowly log cabins. Some of her greatest men were born in them; they symbolize our finest traditions. The log cabin is not, however, a relic of by-gone days. In fact, there are thousands of them still in use here in the West, and hundreds more are being constructed every year. Many ranches where Orchard and Farm is a regular caller, have one or more log houses.

The log dwelling is the simplest and most inexpensive permanent habitation that man can build in a country where timber is available. By means of a few adornments, such as a porch and a fireplace, it may be made not only practical but very attractive. The greatest objection to the log house as ordinarily built, is the tendency of the "chinking" and "daubing" used between the logs to crack and fall away, leaving holes for the wind to find.

Conservation

One Idaho stockman, owner of a large ranch, recently decided that the best solution of his serious labor problem would be to employ married men, but was confronted with the problem of housing them. To have built seven or eight new homes, no matter how simple, would have been very expensive, especially since the ranch was situated a long distance from the railway. On the ranch were six old cabins, remnants of the original homesteads, and it was decided to rebuild them.

Thus, at a comparatively small expense, six attractive homes were fitted up. A unique method of finishing the walls and sealing the interiors was developed. The logs inside were chipped off with an axe until practically a level surface was presented. Then one-inch strips were nailed vertically about two feet apart all around the four walls, to serve as studding for the sealing material. On these strips six-inch shiplap was nailed, commencing at the floor and working up.

A Solid Wall

As each board was placed, the space behind it was filled with a very "lean" mortar, made with sand, cement and water. When the walls had been entirely covered and the mortar had set, there resulted a solid, durable, air and moisture-proof wall, with a smooth, attractive interior, capable of taking a pleasing finish of flat-toned wall paint or other decoration. The ceiling was also covered with the shiplap, nailed to rafters, so as to make a box-like interior as in the ordinary house.

This covering is not only far more sanitary than the white-washed or painted cheese cloth sometimes used, but offers absolute protection from the weather, and obviates the necessity of "chinking" between the logs on the outside, unless it is desired to plaster the cracks for the sake of appearance.—Albert J. Mason.

Plow a Fireguard

A typical fireguard consists of several furrows plowed a short distance from the railroad right-of-way and parallel with it. Fire starting in dry grass dies out when it reaches the strip of plowed ground If you are situated near a railway, such a simple precaution may save not only field crops, but stacks, buildings and stored grain.

Are You For or Against? You Must Decide! Read the Whirlwind Finish

WOULD SINGLE TAX AID OR INJURE THE LAND OWNER?

Vivid Presentation of Each Side of the Great Question by the Leaders of the Two Armies of Voters Who Are For and Against the Amendment.

Fair Play and Justice for All

BY LUKE NORTH,

Vice President of the National Great Adventure for Single Tax.

AMENDMENT 19 on the November ballot is the People's War Measure to take inflated values out of California land and to throw its twenty million slacker acres, its idle mines and oil wells, open to the immediate production of food and supplies.

Food will win the war, and food comes from land. It cannot come from land held out of use for speculation. Idle, speculative acres are the "Curse of California"—twenty million of them! The State Land Commission reports eighteen million idle farming acres and there are easily two million acres more in vacant city lots and suburban tracts.

The opposition tells us that there are only a few idle acres, but there are nearly 100,000,000 acres in California and only 3,000,000 people! The Anti-Single Tax monopolists, in a warning against the Single Tax voting strength, say: "A very small proportion of our population owns land." Turn to the map of any county and see its proportion of idle to used acres. "But very little of this is fertile land," say the speculators, when they are talking to California voters instead of to possible purchasers.

From An Official Report

The State Commission on Land Colonization says: "California has an immense area of fertile and unpeopled land. Only eleven millions out of twenty-eight millions of acres of farm land are being cultivated. Comparatively few settlers are coming here, and many who came in recent years have left. Costly advertising and still more costly personal solicitations have not served to attract colonists. We have not found a single settler who, bringing with him only limited capital, has been able to pay for his land in the time agreed upon in his contract."

The "Curse of California" blights all parts of the State. Every county has its three or four "private land empires." In Siskiyou the Central Pacific has 665,000 acres, over a third of all the taxed land in the county, on which it pays less than ten cents an acre in taxes.

In Kern County four concerns own about four-fifths of the arable acreage and according to the controller's report, even at the nominal tax paid by their idle acres, are assessed at nearly half the land value of the county. Under Single Tax these four holdings, assessed at half the selling price now demanded per acre, at four per cent, would pay all the taxes of every description in the county, and leave several millions in the public treasury.

Sunday papers of October 6th announced that two of these big concerns were to cut up their total area of over half a million acres and place them on the market for from $250 to $600 an acre. These lands, it is admitted, were originally bought in 1870 for a dollar an acre!

They have been idle ever since, while the industry, labor, thought, planning, saving and suffering of men and women who came to California to work and produce have made them valuable.

Present Laws Unjust

The Commission of Immigration and Housing reports: "The California assessment rolls show that our tax laws enable the owners of idle, unimproved land to escape with only a nominal, and in many instances, a positively ridiculous tax. For example, 22,061 acres of Central Pacific lands in Yuba County paid an average tax of six cents per acre; 60,008 acres assessed in the name of the same concern in Tehama County paid 7½ cents per acre; 16,000 acres owned by private interests in Ventura County paid an average of 8½ cents per acre; 13,732 acres belonging to the Southern Pacific Land Company in Tulare County paid an average of 4½ cents per acre.

The Southern Pacific owns about a fifth of the timber land of California. One firm owns a million acres of farm land. In San Bernardino County the S. P. owns 650,000 acres. In Merced County one concern owns 245,000 acres.

Los Angeles, with its population of [illegible] million, is surrounded by two

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Fallacies of a Theorist's Dream

BY ALBERT E. KERN,

President Anti-Single Tax Association of California

THIS is the closing argument of the debate on Single Tax. I thank Orchard and Farm for allowing me to quote my views on this subject. I feel that, by inviting the debate, they followed their policy of keeping their readers fully acquainted on important subjects in which they must be interested. I thank Luke North for the kind and courteous manner in which he has replied to my arguments, and the readers of this magazine for the interest they have shown.

THE one thing that always impresses me after I have studied any article arguing for Single Tax and have reviewed in my mind what has been said, is the fact that I have failed to find one real reason why we should adopt it. Those who advocate it are all impractical. True they are thinkers; they are students; but their arguments are without weight because they lack that facility for practical application which can come only through experience. In my articles in the daily press of San Francisco I am replying to a professor of the University of California, and here in Orchard and Farm to those of a poet and writer. One argument that both have used is that land in Riverside County is assessed at a much higher value than land in Kern County

A Difference in Lands

Now if they were practical they would know that the land in Riverside County has a real worth, due to the returns which it will pay when farmed, far in excess of the worth of land in Kern County, based on what a farmer could obtain by cropping it. But it all looks the same to them. They consider it all as merely so many acres. It is possible that they may know what alkali is, but they would never think to test the land for hardpan, and much less to apply the many necessary tests for humus, physical nature of the soil, rainfall and the many other conditions that must be right in order successfully to grow crops. They do not know that land within the boundaries spoken of as the "Dixon Ridge" sells for more than land on the other side of a 60-foot road for the sole reason that it will produce a larger return. They do not realize that in order to raise cattle it is necessary to move the herds from one part of the country to another—taking them during certain months away from one section of the land where the crop has grown short and dry to another part of the land where feed conditions are right. They simply ride through the country in the middle of summer and see land that does not carry enough feed to feed a jack rabbit, and is not being planted to some crop, and in spite of the fact that just a few weeks before the owner moved his herds to the mountains so that his cattle would not starve, they set up a cry that the land is being "held out." They must feel that a farmer can raise livestock successfully on a ten-foot lot! And notice that I always use the word "successfully" because there are two kinds of farmers—successful and theoretical. And the theorists say to us that if we simply remove the taxes from the improvements and double them on the land, hell will be far removed from this vicinity and the people will flock in and settle up the land (just by the way as they did not do in Canada). The Single Taxers put it over in Vancouver and then instead of a great influx taking place, even the Single Taxers left and that was the only good thing that ever came of trying it up there.

Fact vs. Fancy

I tell you, and you know it to be a fact, that there is but one way successfully to farm and to realize fully the joy of such success, and that is, not by working it out theoretically in your house and not by having some one come along and make you a present of a deed. Right here we are reminded of the expressive saying: "The yearnings of one man for the earnings of another." Could successful farming take place and would additional crops be produced by a mere parceling out of ten acres of land to every one in California or in other words, by throwing the land wid-

(Continued on Page 27)

Our Single Tax Debate

THE Single Taxers polled over 260,000 votes in California in 1916 and assert that they will add 70,000 more at the next election and win the State. Do the farmers want taxes levied on land values alone? Every voter wants to know the arguments for and against the single tax, so that he can act intelligently. Are you "in the dark?" If so, you should not miss a single number of Orchard and Farm containing this tremendously important debate on the question:

Would Single Tax Aid or Injure the Land Owner?

Luke North, vice president of the National Association known as "The Great Adventure for Single Tax" puts the case for the Henry George theorists and Albert E. Kern, president of the "Anti-Single Tax Association of California," replies. In this issue the contestants give their concluding arguments.

All voters, land owners and students of political economy will find the controversy highly interesting and educational. The facts set forth in this war of words are of vital importance to farmers throughout the State. Every land owner will, of course, be affected by the proposed Single Tax Amendment to the Constitution of California.

Here Is the Proposed Amendment

As it Would Appear on the Statutes.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

A new section to be known as Section 15 is hereby added to Article XIII of the Constitution to read as follows:

On and after January 1, 1919, all public revenues, State, county, municipal and district, shall be raised by taxation of the value of land irrespective of improvements thereon; provided, that war veteran, college and church exemptions in Sections 1¼, 1½ and 1a, Article XIII of the Constitution, are not affected hereby.

The intent of this Single Tax amendment is to prevent the holding of land out of use for speculation and to apply the land values which the community creates to community purposes.

All constitutional provisions and laws in conflict herewith are hereby repealed.

A Big New Fruit Industry for California

Uncle Sam wants California farmers to raise millions of pounds of currants annually—not the little bush currants with which we are all familiar, but currant-grapes, used in making the dried fruit of commerce. Why should we import 30,000,000 pounds every year when the fruit can be successfully and profitably grown right here in California? This article includes directions for securing cuttings.

By George C. Hussman
Viticulturist, United States Department of Agriculture

WHO would ever have dared to predict that a ring around a grape vine would be worth $5,000,000? Yet this apparent absurdity is an actual fact, for the recent discovery of a simple operation which makes it possible to raise currant grapes in California just as good as those produced in Greece and formerly imported in tremendous quantities to this country, means at least $5,000,000 to the Golden State.

This operation is known as "girdling." It consists in cutting two parallel incisions through the bark, around either the trunks, arms or canes of the vines and taking out the bark between these parallel cuts. The girdling must be thoroughly and cleanly done, and performed while the vines are in bloom. Girdling is not only necessary in order to make the blooms set properly but insures at least twice as much fruit and a product of better quality.

Yield Obtained

Vines in California experimental vineyards are producing from 18 to 45 pounds of fruit to the vine, the yield depending largely on the variety of resistant stock on which the vines were grafted. Soils suited to other vinifera varieties grown in the State are also suited to the currant grapes when they are grown on their own roots. In phylloxera-infested territory, however, they should be grown on resistant stalks congenial to them and suited to soil and climatic conditions where they are to be planted. Aside from this precaution and the process of girdling, the culture, including time of planting, training and pruning, is essentially the same as that required by other varieties.

An important fact is that currant grapes are among the earliest to ripen, in fact, they ripen so early that they will be dried and put away before the earliest rains occur in districts where the raisin varieties are too late for successful growth. In the regions now devoted to raisin production, furthermore, the currants can be grown as an advance crop, and can be stored before the raisin grapes are mature. This affords an excellent opportunity to make the most economical use of labor.

Early Trials

Currant grape varieties were introduced into California as early as 1861, and these were followed by later introductions. Among all these, however, there appears to have been no valuable dark colored varieties, some fairly productive red and white strains producing fruit of inferior quality.

The "Panariti" was introduced by the United States Department of Agriculture through David Fairchild, agricultural explorer of the Department, a consignment of cuttings having reached Washington, D. C., May 9, 1901. Concerning this shipment Mr. Fairchild stated at that time: "The variety of grape producing the currants or corinth of commerce These cuttings were purchased in the village of Panariti, which lies among the mountains back of Xyloncastron. This village is noted as producing some of the finest corinths in Greece."

Several currant grape varieties are grown in Greece, although the crop differences are not distinguished in that country as varieties, but rather by the name of the region in which they are produced.

Some of the Panariti cuttings were distributed to grape growers in California, Arizona and southern Nevada, and some used in experiments in the Department's Experiment Vineyards in California. Exceptional difficulties were encountered in successfully growing these, and it became a problem for the viticultural investigators of the Department to find out where the trouble was. The knotty parts of this problem appear now to have been solved.

Acreage Required

When vines are planted 8x8 feet apart (the usual distance) an acre will yield a crop of fresh grapes ranging from six to fifteen tons, an average of ten and one-half tons of grapes or, conservatively, from two to five tons of dried currants. From this we conclude that from 4000 to 8500 acres of these grapes would be necessary to produce the 30,000,000 pounds we annually import and consume and, no doubt, the consumption of them could be much increased beyond this.

The berries being seedless, delicious in flavor, rich in quality, and very early in ripening, they also make an exceedingly desirable fresh fruit for the table

It is, of course, a great advantage in growing grapes for drying purposes, to be in a district which permits sun drying. All the districts in California, in which grapes for various purposes are now grown, have, apparently, suitable conditions for the growing of currant grapes. Protection against the dew at night will likely be necessary in some of the coastal districts, but as it is preferable that the currants, while drying, be shaded during the great heat of the day, the same shelter will do for both purposes.

Description of Fruit

The importance of the Panariti in the currant group of grapes suggests a description of its fruit: Cluster fairly compact, cylindrical to tapering long, narrow, usually prominently shouldered, often in two parts. Berry very small, usually less than one-quarter inch in diameter, globose, color purple-black with whitish bloom, surface smooth; skin thin, tender; flesh pearly white, soft, juicy, seedless. Flavor rich, very sweet and characteristic of the currant grapes. Relatively high in saccharine and acid. Excellent in quality both as fresh fruit and dried. Ripens from July 15 to August 15. Usually produces a small second crop of small loose clusters consisting of larger seeded berries.

How to Obtain Cuttings

In a ten-year test of growing corinths on various resistant stocks, a sufficient number of varieties of these stocks have been found from which to select such as are adapted to any of the soil types as well as to other conditions. These selections are, furthermore, congenial to the currant grape varieties on which they show good fruiting tendencies.

It is expected that in the near future a distribution of cuttings of the Panariti will be made to a limited number of growers, from the Department's experimental vineyards in California. I expect to recommend such a distribution upon my return to Washington. Requests for such cuttings should be addressed to me as follows: Geo. C. Hussman, Pomologist in Charge of Viticultural Investigations, United States Department of Agriculture, Washington, D. C.

These Three Photographs Tell a Graphic Story of the Importance of "Girdling," a Simple Process Which Was Discovered Only After Years of Painstaking Experiments by Experts of the United States Department of Agriculture

Producers of Wine Grapes May Well Look Upon Currant Growing as Offering Interesting Possibilities Now That Their Business Has Been Dealt a "Knockout Blow" by Prohibition Legislation

How Girdling Increases Yield

(1) Panariti grafted on Adobe Giant. Check vine, not incised.

(2) Same, incised at the proper time.

(3) Trunk incision completely healed.

(Arrows on (2) and (3) indicate the magic "ring" which made the vine produce 40 pounds of fruit instead of 10.)

Baart Instead of Barley

Is the slogan of the "more wheat campaign." In this article are given some of the actual reports of farmers who have experimented with Early Baart wheat, which bids fair to displace all other varieties in California.

By Norman F. D'Evelyn
Of the Agricultural Department, Sperry Flour Co.

EDITOR'S Note: The writer of this article has expressed his willingness to furnish any information or advice available through the extensive experimental and educational machinery of his department. Because of limited space he has found it necessary to touch lightly upon the different phases of the subject, but any questions occurring to Orchard and Farm readers will be gladly answered if addressed to the Stockton office of the Sperry Flour Company.

IS His Majesty, Wheat, King of all the cereals, again to reign in California? Conditions are changing and those who have made a study of the subject agree that now and after the war, wheat holds better prospects from the standpoint of monetary return for California farmers, than barley.

An extensive campaign for more wheat is now under way in this State, partly in view of the world need so strongly emphasized by the Food Administration and partly as a refutation of the popular fallacy that California grain lands are "worn out." Wheat is the crop that first put California on the agricultural map, and wheat is surely again coming into its own.

It is "coming back" in a new form, however. For experiments extending over a period of years, together with results obtained in the neighboring States of Oregon and Arizona, have demonstrated conclusively the superiority over the standard California varieties, of the wonderful Early Baart. This variety is being extensively planted this year, and, in fact, is being made the basis of our "more wheat campaign." It is superior to the "standard" wheats of the State not only from the millers' standpoint (being equal in milling qualities to the hard winter wheats of Kansas), but in returns to the farmer.

Baart Makes Good

From Chico, Butte County, on the north to Imperial Valley on the south, satisfactory reports of the yield of Early Baart wheat this season have been received. Baart is a bearded wheat with a light but elastic straw. The grain does not break off nor shell out any more than that of the so-called "standard" milling varieties. It is a hardy wheat, withstanding extremely wet as well as unusually dry weather. The Baart makes a rather rank growth, has a very heavy leaf, and most important of all, ripens from ten to fifteen days earlier than the [illegible]. This advantage is important for the reason that California [illegible] with early hot summers and occasional north winds which have a tendency to shrink wheat that is not well matured.

In the Sacramento Valley a 50-acre tract of Early Baart wheat was planted along side of 800 acres of Bluestem at Riego on the Natomas tract, just above Sacramento, by Messrs Warren and Sebbelow. From their report of their experiences during the season just passed the following summary has been made: Both varieties were seeded between November tenth and twentieth; about 80 pounds of seed per acre was used. The Bluestem came up about two weeks before the Early Baart and the latter made but half a stand because, it is believed, of insufficient rainfall. (Subsequent tests, however, have not shown any difference in time of germination between Bluestem, California Australian and Early Baart.) In spite of this set-back the Baart soon outgrew the Bluestem and showed a tendency to stool never equalled by any other wheat on that character of soil (heavy adobe with a few inches of sediment on top). More than 40 heads were noted on one stalk and the average was fifteen to twenty, while the Bluestem averaged from four to six. All heads were large and well filled. The Baart matured two or three weeks earlier, and 51 acres yielded 974 sacks, or 19 sacks per acre. A perfect stand of Bluestem in the two adjoining fields averaged 14½ sacks per acre. These growers are to plant half their acreage to Baart next year. They were particularly impressed with the advantage of being able to cut the Baart before the Bluestem had matured.

Harvesting Early Baart Wheat

Harvesting operations in the great Morcing Brothers wheat fields on the Natomas tract near Sacramento. This firm, the largest growers in California, raised 18,000 acres of wheat this year. Note the bulk handling attachment on the Holt steam harvester. The use of this and the substitution of motor trucks for horse-drawn vehicles effected a harvest saving of $8½ a day, 65 less men having been required. This "combine," with 34-foot header, harvests 80 to 100 acres a day.

Other Enthusiasts

In the same neighborhood Morcing Brothers, who had practically 20,000 acres in wheat, have become so thoroughly impressed with the advantages of the Early Baart that they will plant eight or nine thousand acres of it next year. They had about 2500 acres of Baart this year, and obtained as much as 2600 to 3000 pounds to the

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Next Month

LUTHER BURBANK will tell Orchard and Farm readers about some of his latest discoveries and experiments. Our BIG CHRISTMAS ISSUE, in fact, will hold many a pleasant surprise; it will be crammed full of big features and practical information, the kind you can put right to work to increase your profits! In order not to miss this and the 12 big numbers of 1919, each of which is going to be better than the preceding one, make sure that your subscription is not about to expire. Orchard and Farm has not so far been compelled to raise its subscription rate, but constantly increasing costs may compel us to take this step at any time.

That advertisers recognize the prestige of Orchard and Farm as "The Big Western Farm Magazine" is emphasized this month by the fact that our manager, Mr. Tyler Smith, was forced to "steal" some of the space reserved for reading matter. I have a suspicion that he would like to make Orchard and Farm all ads and no reading matter if I would let him, but as he showed me several big ones which he had to leave out, I could not begrudge him a little of "my" space, even though it meant "killing" some valuable articles.

In fact, I think the advertisements are mighty good reading and I hope that every subscriber, in noticing how our advertising columns are filled with live, paid notices of reliable, trade-marked goods and high-grade propositions, will remember and act upon the messages they carry.

Don't forget the big contest for Practical Experiences and Discoveries. Write us about your short-cuts and experiments that we may publish them for the benefit of the other fellow. The large number of letters we receive every week marked "For Prize Contest" indicate that there will be mighty close competition when the $105 in prize money is distributed.

And remember that this is YOUR paper! One of our greatest pleasures is afforded by the interest of our readers, as evidenced by scores of letters of both commendation and suggestion. We welcome both kinds and trust that whenever the "spirit moves" you will write to

The Editor.

Almond Authority

After six years of extended observations in practically every almond district in California R. H. Taylor, assistant professor of Pomology in the University of California, has published the results of his investigations in the Agriculture Experiment Station series under the title "Almond Culture in California." Practical phases of the subject are discussed with a view to aid farmers in avoiding pitfalls usually encountered by inexperienced growers.

Keep in mind that chicks should have apartments or yards according to size. When larger and smaller chicks run together the smaller one do not have an equal show.

Keep lots, feed troughs, and watering places in sanitary condition

Secretary Lane's Article

(Continued from Page 3)

carelessness in ignoring its resources.

Some idea of the vast potential value of this latent national resource may be gained from a brief consideration of the results accomplished by the United States Reclamation Service since its organization on June 17, 1902. Up to the last of the fiscal year ending June 30, 1918, the Service had invested over $100,000,000 in some thirty irrigation projects in the West.

The total area actually irrigated during 1917 was 1,060,000 acres. The value of the crops grown on the reclamation projects for the season of 1917 amounted to nearly $60,000,000, without including livestock industries, dairy products, wool, etc. When the projects are completed the area under cultivation will approximate 3,000,000 acres, capable of supporting 250,000 people on 60,000 farm homes

Means Much to the West

What the Reclamation Service has meant to the people of the arid West can be appreciated only by those who have seen the transformation of the desert, the change in a few short years from "the land that God forgot" to prosperous communities, not alone self-sustaining, but shipping thousands of carloads of produce to the markets of the nation. Each reader can compute for himself the tremendous economic advantage that will accrue to the West alone when these 15,000,000 acres of arid land, 24,000,000 acres of cut-over timber land, and 6,500,000 acres of swamp land are reclaimed and in the hands of virile American citizens. The reclamation of the remaining 200,000,000 acres in the East and South will not only add an almost incalculable amount to the wealth of these portions of our country, but will indirectly prove of immense benefit to the West as well.

The solution of the problem of the reclamation of these vast areas in their entirety at first sight seems impossible. Men by the million will be needed to construct the projects. The war itself, however, furnishes the solution. With the advent of peace and the return of our fighting men, labor conditions in the country must be readjusted. The arts of war must give place to the arts of peace. The return to normal labor conditions will be difficult enough without taking into consideration the return to our shores of millions of men who will be looking for work.

After Victory, What?

Left to themselves, these men will be faced with about four possibilities. Many will, of course, return to the jobs which they held before joining the Colors; others will capitalize the knowledge they have acquired in the army or navy and enter some trade which they have learned in these branches of the service; others will take the first jobs that come to hand, whether especially suited to their capabilities or not; and still others will enter the ranks of the unemployed taking a job here and there and gradually but surely becoming a total economic loss to the Nation.

Intelligent direction of these returned fighting men will, however change this aspect entirely. Hundreds of thousands of men who otherwise might become an economic liability will be given the opportunity to become an economic asset. In other words, these men will be given the opportunity to continue to work for the Government. The scattered nature of the proposed irrigation, cut over, and swamp land projects throughout the country will make it possible to offer each man the opportunity to work usually within his own State, and often near his home town.

These men will be offered good wages by the Government to build the huge dams and the miles of canals in the arid region; to blow the stumps and clear the cut over lands, to dig the drainage ditches and clear the

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The Woman, the Boy, and the Man Past Fifty

Are They a Success as Farm Laborers?

A Man Is as Old as He Feels

By M. E. Bryant

President Half Century Association of America

THE Half Century Association of America has demonstrated beyond the shadow of a doubt that the man past fifty years of age is neither a has-been nor a would-be. He is decidedly an "is-er!" This season our association has placed with the growers approximately 1000 of its members. The proof of their efficiency is in the fact that the employers have invariably asked for "a return engagement."

The association, born because of necessity arising from unjust discrimination, has since its inception in September, 1917, enrolled more than 4000 men. This membership includes broad-minded gentlemen in all walks of life, from the bankers, doctors and lawyers to the man who was formerly without a job; all are working together for the common interest of the young-old man. In addition to its agricultural work, the association has succeeded in causing the age limit for civil service to be raised, and in some cases removed, and has helped men past fifty in all circumstances to "come back" and receive the recognition they deserved.

An Effective System

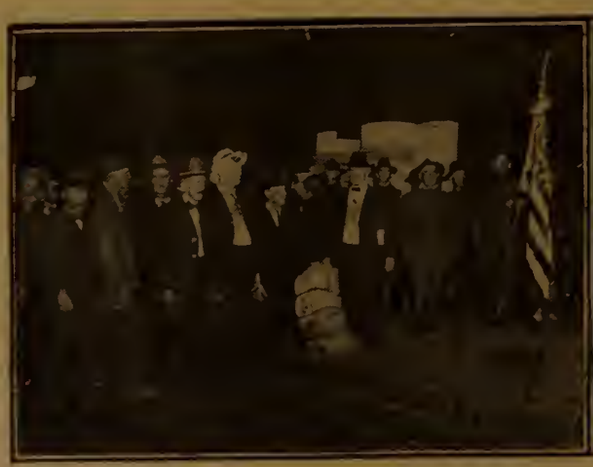
By sending our men out under the unit system, we have overcome one big objection; namely, that of securing proper housing. Under our system we send men to the farming districts in units of 100, and they are housed in central camps composed either of tents or buildings. Steel cots and good mattresses are provided, and the men are fed in a big mess tent or building.

Our camp "Number One" at Lankershim has been described by the State Immigration and Labor Commission as the model camp of California. It is located in a two-story building and provided with 75 steel cots. The well-ventilated dormitory is 50x60 feet in size. A large dining room, seating 100 men, is provided on the ground floor. The detached kitchen is fitted with every convenience, including a hotel range and a dish washer. A large butcher's cooler is used for keeping the provisions, and the entire "plant" is screened. The help consists of one cook, two assistants and one dish washer. A commissary man keeps the accounts and, by means of an automobile, keeps in touch with the labor requirements of the growers. The farmers come to the camp each morning for the men wanted and return them at night. The men carry with them their mid-day lunch. This camp has been exceedingly successful, the growers cooperating in every way and expressing themselves as highly pleased with results.

Don C. Bitler, development agent of Imperial Valley, who supplies much of the labor used in that locality, after visiting the Lankershim camp and talking with the ranchers, was so favorably impressed with the work of the men past fifty that he returned to the valley with the recommendation that arrangements be made to bring a large corps of our members to help with this year's harvest. Accordingly the writer attended a meeting where the arrangements were perfected. It was agreed that the association should furnish approximately 2000 men. Camps of 100 men were placed in each of the twelve districts of Imperial Valley, these camps being erected at the expense of the districts. El Centro agreed to provide for 500 men.

The work that we have done for Los Angeles and Imperial counties may be done for other counties. Our membership and standing are constantly growing stronger. We have been in existence but 10 months, but have made our influence felt in a big way. More than 750 of our sons are fighting overseas and we, as the fathers of the fighters, are only trying to do our part in the world struggle. It is our purpose to help in raising the food that is helping to win out. Inquiries addressed to our headquarters in the San Fernando Bldg., Los Angeles, will be given prompt attention. Call on us and you will find us ready!

If you are one of those who regard the man past fifty as a down-and-outer, you have a pleasant surprise in store. We stand ready to "show you"



Helpful Service

Half-Century Workers Leaving for Imperial Valley

Young Patriots

Working Reserve Boys Helped to Save the Fruit Crop

THE war has done more perhaps than any other event that could have occurred to assist the elderly man to "come back." The greatest generals in the Allied armies are past 50, and most of the big leaders who are making possible America's tremendous and telling efforts are on "the sunny side of life." The world is learning to look forward to, instead of back upon, the half-century man, who finds that his ripened experience is now more of an asset than a liability.

The "half-century man" himself, however, is largely responsible for the change. He has learned that the world is ready to accept his own opinion of himself. By thinking, acting and looking young, he feels young and is young. He has "come back" to stay.

What Boys Have Accomplished

By Richard Hatton

Boys' Working Reserve Division, U. S. Department of Labor, Washington

THE American public must politely take off its collective hat to the American boy. He has done a wonderful work in helping to gather the crops of the nation during the most serious period of labor shortage the country has ever known, a work which few average citizens recognize or appreciate.

So swiftly, considering the originality of the whole plan, has this mobilization of American youth been accomplished, that its striking results in the present and its boundless possibilities for the future are even today scarcely realized in America. The morale of these boys on the farms has been splendid, and less than two per cent have failed to make good.

Work on the Coast

The Pacific Coast States bear witness to their effective labor. In Washington members of the reserve are proving of great value in the fishing and canning industries. In California 1200 boys were engaged in picking apricots, grapes and cherries. In Oregon the lads of the reserve, 6000 strong, have prevented great losses in the strawberry, loganberry, raspberry and cherry crops. In other parts of the U. S. they are by their steady and increasingly skillful toil, saving the local crops and thus providing the sinews of war for America and her European Allies against the Huns.

The U. S. Boys' Working Reserve was established in the spring of 1917 as a division of the Department of Labor. Its purpose was to mobilize the youth of America from 16 to 21 as a labor reserve, to be distributed at critical spots in our national economic structure where the inevitable labor shortage would endanger production. Three branches were organized, the Agricultural, the Industrial and the Vocational, but the imminent food shortage forced the first branch greatly to outgrow the other two. In the present season over 210,000 boys have been placed in productive work on farms all over the country, and it is conservatively estimated that these patriotic members of the "BWR" have saved and grown enough foodstuffs to feed an American Expeditionary Force of 1,300,000 men in France for a year

In the spring, boys are voluntarily enrolled in the reserve of their respective States, and about the close of the school term they are placed in the Farm Training Camps, or, as they have been called, the "Farm Plattsburgs." These camps provide an intensive and practical training under the direction of the best farm specialists of the various State Agricultural Colleges. The boys are thus prepared beforehand to meet the difficult problems and tasks peculiar to agricultural work. Through the co-operation of the Y. M. C. A. and the State Boards of Health, the farms are inspected and each boy given a careful medical examination. He is then "placed" for work, either in a supply camp where many boys are together, or individually on a single farm. The season lasts from six to eight weeks.

In Nevada, when the farmers discovered that the reserve boys were experienced tractor operators and repair men, some of them were persuaded for the first time to employ tractors on their ranches and a great increase in production resulted.

A feature of the work which is becoming of more and more importance is the semi-military discipline maintained in the Farm and Supply Camps. Recently the War Department has promised to co-operate in supplying army officers for this phase of the boys' work, and a national uniform is soon to be adopted for members of the reserve As in our army abroad, officials of the Y. M. C. A. supply recreation in the camps and supervise the welfare of the reserve boys. In these ways the boy is trained both for the physical and mental hardships of actual war, should he be called when of age, as well as for the responsibilities of peace.

When the scheme of placing high school boys and college underclassmen on American farms was first projected, it was feared in some quarters that their education would be seriously hampered. Fortunately, however, the summer vacation of these boys falls almost exactly in that season of the year when help is most needed on the farms. Far, therefore, from proving an obstacle to his education, the agricultural branch of the reserve has proved a great educational asset. It has taught the boy responsibility, and gratified his earnest desire to be of service to the nation in the present crisis. It has, moreover, sent him back to his winter schooling greatly improved in physical condition, with an added scientific training in principles of agriculture, the existence of which, but for this work, he might never have known. Through the agency of the Boys' Working Reserve, in fact, town and country are coming into closer contact with one another than ever before, and acquiring a new sympathy with each other's problems.

If further drafts upon American manhood be necessary, the boys will be prepared to fill the depleted ranks of labor, to maintain a steady production on our farms, to provide our growing merchant marine with American foodstuffs for the fighting men abroad, and to give vital aid in keeping American campfires at the gates of Potsdam.

The Women Have Made Good

By Myrtle Shepherd Francis

Chairman Southern California Division Woman's Land Army of America

Statistics of Woman's Land Army of America

Some of the national accomplishments:

39 States are organized. 17 States have units in field. 127 units in all are at work. 15,000 W. L. A. A. workers were on the land this year.

The work in Southern California:

Units have been sent into six counties: Los Angeles, Ventura, San Bernardino, Riverside, Santa Barbara and Orange. 28 units sent out in all. 800 workers sent out this season. Units numbered from 8 to 200 each.

The units now at work are as follows:

Elsinore	Unit of 15—general agriculture.
Elsinore	Unit of 40—tomato picking and packing.
Cucamonga	Unit of 20—grape picking and packing.
Fairmont	Unit of 10—almond picking.
Uplands	Unit of 28—orange and lemon picking.
Saticoy	Unit of 9—walnut picking.
Montalvo	Unit of 10—bean piling.
El Monte	Unit of 16—dairy work.
Carpenteria	Unit of 6—orange and lemon picking.
Simi	Unit of 9—grape picking and packing.
Puente	Unit of 10—walnut picking.
Whittier	Unit of 11—walnut picking.
Sanning	Unit of 37—prune and almond picking.

IT HAS been proved that women are an important factor in the solution of the agricultural labor problem. Of the 800 women sent out to work for farmers and fruit growers from our Los Angeles headquarters this season, 95 per cent have made good! Our association, which is national in its scope, has had to overcome many obstacles, among them being public prejudice. We had for an inspiring example, however, the work of English women who have entered every branch of agricultural service, including the handling of heavy machinery, dairying, teaming, stable work, tractor and motor truck driving, all kinds of field, orchard, nursery and garden work, peat-mining and poultry farming.

The best evidence of our success is the favor with which our work is regarded by farmers who have enlisted our services. We have received the endorsement of such associations as the Walnut Growers', Milk Producers' and Citrus Growers' Associations, as well as the recommendation of many individual farmers. Experience has demonstrated that our members can serve best by doing such work as fruit and nut harvesting, drying, canning, packing and dairying, rather than the heavier field work, although many of our girls have tackled the hardest kinds of jobs. Some have made a conspicuous success of cultivating and harvesting market garden truck.

A Necessary Movement

It has been suggested in some quarters that the W. L. A. A., as an organization, was superfluous and that efficiency could better have been attained by dividing up the work now done by the W. L. A. A among various State agencies now in existence.

In order, however, to reach the many classes of able-bodied women who would not think of entering agriculture for a livelihood through an employment bureau, it was necessary for a far-reaching organization of women to popularize the work on the basis of genuine patriotic service and we wish to emphasize the importance of maintaining the organization as an entity if this work is to be accomplished effectively.

Organization Required

We have a number of earnest members, who formerly tried to do farm work independently and they testify to the necessity of an organization to protect and define the rights and duties of women in this new field. Invariably, because she is a woman, the independent worker is expected to help with dishes, tend children and do other indoor duties that would never be required of a man in the same position. Any organization that spreads a constructive and concrete patriotic propaganda is of distinct value at this time, and it is difficult to persuade the strong young woman who daily endures backaches and blisters, that she is not interested in winning the war.

Raising 'Em by Hand. Farmerettes at Work

California offers greater inducements to the woman worker on the land than any other locality in the United States. The climatic conditions and variety of horticultural crops make it possible for great numbers of women to be employed both in growing and harvesting, thus releasing many men and boys for the heavier work.

Many fine men and women have rallied to our cause but our strongest ally has been and is, the Agricultural Committee of the Los Angeles Chamber of Commerce, who from the first have been awake to the necessity for the land army movement in Southern California.

Our offices are Rooms 427-428 Chamber of Commerce building. Farmers and growers, who need reliable women workers and who call upon us, will be given prompt service.

Note What It Does

How Special TrackPULL Tractor Works Orchards, Vineyards

Tractors are too important to buy without first getting all the reasons to show why some are better than others for your particular kind of work.

The Bean TrackPULL Book tells plainly why you need a Bean Tractor if you want orchard and vineyard work. Worth its weight in gold because it posts you on vital qualities in such a tractor. You know what your tractor must do. Send for catalogs of all tractor makers and compare with Beau TrackPULL Book. Then decide on your tractor.

The Bean TrackPULL operates through single track which does all pulling and steering. Full power on turns same as on straightaway. Makes no difference how far off center you hitch—pulls just the same. Works close to trees and vines. Pulls, "gees," "haws," and backs just like team. 12-year-old boys can handle.

Made by manufacturers of orchard machinery for 34 years. All their specialized experience built into it.

Advanced improvements in Motor, Track Rollers, Drive Sprocket, Bearings and Rear Wheels make the Bean the most efficient orchard and vineyard machine ever manufactured.

Get invaluable Bean TrackPULL Book Now—send the coupon before you forget it. Save money. Learn name of nearest agent who can show machine.

See These Valuable Improvements Which Mean Increased Reliability

1. Motor—Improved oiling system. Improved carburetor control. Governor equipment if desired.

2. Track Rollers—Provided with hardened steel thrust bearings.

3. Drive Sprocket—Solid steel ring, machine cut, hardened and heat treated assures long service.

4. Bearings — Provided with improved dust protected greasing facilities.

5. Rear Wheels—Provided with dust cap, wear resisting bushings and improved greasing facilities.

BEAN TrackPULL Tractor

6 H. P. at Drawbar

With Patented Front Drive

MAIL THE COUPON NOW

Bean Spray Pump Co
181 W Julian St.
San Jose, Cal
131 N Los Angeles St
Dept C-11
Los Angeles, Cal.

Send me catalog and full information without obligation on my part

Name

Street

City

County State

No of acres King of crop grown

Thus constructed, the GMC SAMSON SIEVE-GRIP TRACTOR has for years proved its ability to meet trying service. It is an unfailing help in time of need.

Like the battleship, all material entering into the construction of the GMC SAMSON SIEVE-GRIP TRACTOR is carefully selected and tested to meet the duty to be performed.

THE GMC SAMSON SIEVE-GRIP TRACTOR is simplicity itself. It is powerful and reliable. It displaces ten horses on the farm and is adapted to countless uses, stationary and otherwise, for many of which horses are not suitable.

The GMC SAMSON SIEVE-GRIP TRACTOR will do your plowing, discing and cultivating in field, orchard and vineyard and do it better, cheaper and quicker than any other power.

The GMC SAMSON SIEVE-GRIP TRACTOR will pull your binders and small harvesters, drive your grain separators, run your bean threshers, operate you ensilage cutters and blowers, pump your water, do your odd jobs, CUT YOUR COSTS and INCREASE YOUR INCOME.

Buy a proven product.

For further information, ask the man who owns one or send for our booklet, Better Farming.

Samson Sieve-Grip Tractor Company

Division of
General Motors Corporation. STOCKTON, CALIFORNIA.

Are the Birds Pro-German?

A reader points out the tremendous damage inflicted annually on our fruit farmers and calls our attention to the fact that the growers are not, as is frequently supposed, without means of recourse.

I PRESUME I will invoke the immediate anger of the various Audubon societies and other lovers of birds (who, by the way, do not like them any better than I) when I undertake to point out the damage they do. We are being continually urged to protect them because of their value in destroying insects, but I want to say that the birds have done more damage to fruit in California this year than all the insects in the State. We can control insects with sprays and fumigation, but to kill a beautiful song-bird—oh what a sin! I, too, love their graceful flight, their beautiful plumage, their inspiring song, but are these things to compensate us for the destruction of thousands of dollars worth of food? Is not the food more vitally needed just now than the songs of the birds?

Some City Methods

The enterprising food producers in the cities who managed to find a paper sack to tie over each ripening peach and each sunflower head, or who took a vacation in order to stand guard over their apricots this fall, succeeded in getting a few pounds of produce for their pains. But not everybody had the bags nor the time. I heard about one city man who hung a bunch of tin cans in his peach tree and extended a string to the kitchen window, so that his wife could pull the string, rattle the cans and frighten the invaders every few minutes. With peaches worth 5 cents a pound in the markets, no doubt this undertaking paid well, in spite of the inconvenience involved.

Serious Damage Done

On a ranch, however, such methods are out of the question and the birds annually take an enormous toll. I recently made a trip through the Sacramento Valley, where I had an excellent opportunity to observe bird injury.

In isolated localities where the fruit acreage is small, a very large amount of fruit has been destroyed this season by birds. I have seen fig orchards of 20 acres or more, where from 30 to 50 per cent of the fruit has been absolutely destroyed this season. In localities where there is a very large acreage in fruits, bird injury is proportionately less because apparently there are about the same number of birds per unit of area every season. Consequently where the fruit acreage is small they concentrate on it and cause more severe damage.

There is an idea prevalent among California fruit growers that the State law prevents any recourse to poisoning or shooting of birds, but a statement from Dr. H. C. Bryant of the Fish and Game Commission, is to the effect that non-game birds may be killed or poisoned or disposed of in any satisfactory manner where they are actually destroying crops. This means that poisoning or shooting is entirely in order under justifiable circumstances. Bird damage is especially severe in sections where small fruits are grown and in my opinion it greatly overbalances any good which birds may do in keeping down insect pests. Of course considerable depends upon the kind of bird. The bird causing the most serious damage in this State seems to be that one known as the linnet.

Dr. Bryant is collecting some interesting data on the subject and it is to be hoped that the exact status of our various birds will be established, so that we will know which is Hun and which is Ally.—Robert Hobson, Sacramento, Cal.

Example of Serious Bird Injury
These figs were ruined by linnets. They were taken from an orchard in which 40 per cent of the fruit was rendered unfit for market.

When answering advertisements, always mention Orchard and Farm.

State Farms for Settlers

Thirty-one Farms and five Farm Laborer's Allotments in the State Land Settlement at Durham are now open to the inspection of intending settlers. Applications will be received up to noon November 20, 1918. For particulars regarding prices, terms of payment, address George C. Kreutzer, Superintendent, Durham, California.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. SAMPLES and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.
The Yellow Front. Established 1892.
112-118 South Los Angeles St.,
Los Angeles, Cal.

RANCH TOOLS FOR SALE

FOR SALE—RANCH TOOLS FOR 30 DAYS AT PRESENT WHOLESALE COST PRICES; WE NEED THE SPACE FOR OUR TRACTOR AND ACETYLENE WELDING SCHOOL. BE PREPARED AND SAVE MONEY BY GETTING YOUR NEXT YEAR'S TOOLS NOW; THIS IS NOT AN ADVERTISING SCHEME, BUT A GENUINE SALE OF ALL KINDS OF RANCH TOOLS.

SCOTTY'S PLACE
135 S. Los Angeles St., Los Angeles, Cal.

Easy Ditching

THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with

THE Martin

DITCHER, Grader and Terracer

Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.

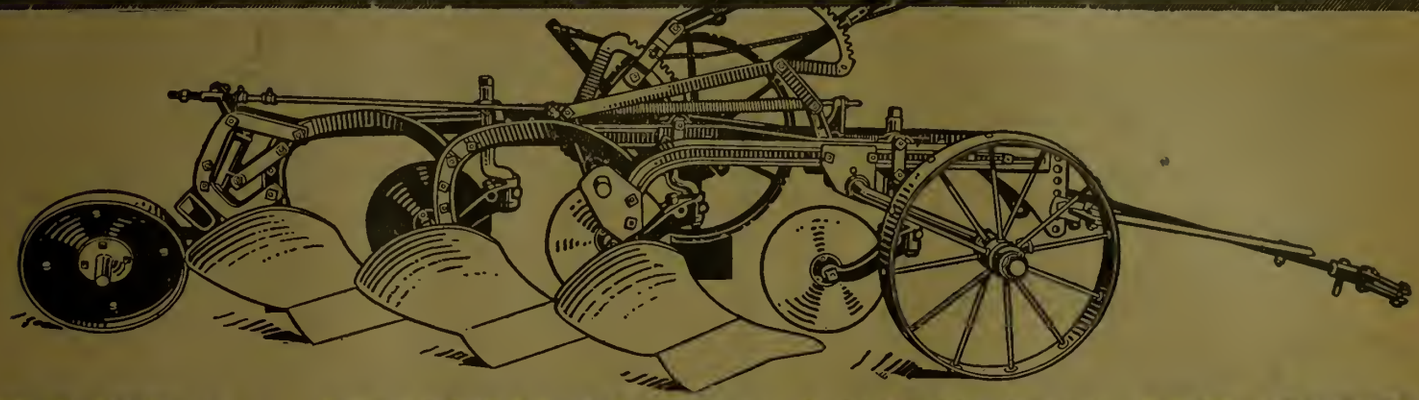
Made In Horse and Tractor Sizes

All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

Owensboro Ditcher & Grader Co., 1591 Wazee St., Denver, Colo.

No Knife Is Better Than Its *Blade*

No Tractor Plowing Outfit Is Better Than Its *Plow*



JOHN DEERE TRACTOR PLOWS

Give Special Satisfaction To California Farmers

It takes special tractor plow construction to meet the requirements of plowing in California.

John Deere Tractor Plows, No. 5 and No. 6, have that construction.

The development of their special advantages was directed by men who had made a close study of California tractor plowing conditions.

They have fully proved their special ability in the hands of California farmers and fruit growers during the past year.

These John Deere Tractor Plows are controlled by the wheels at all times because the axles are rigidly fastened to the beams. The land wheel is set back balancing the weight of the plow over all of the wheels and insuring even depth of plowing in uneven ground. The plows get down to position quickly and ***stay in the ground*** while plowing.

The land wheel and front furrow wheel are set as to permit plowing close up to trees or vines in throwing either to or from the row.

Both levers are out of the way of limbs while the plow is at work.

The power lift for these plows is the simplest and most dependable ever designed. No chains or sprockets to cause trouble. A powerful clutch engages positively and raises the bottoms high and level.

There is unusual clearance between mold board and beams for deep or trashy-land plowing.

These plows are exceptionally strong in every part. Beams are warranted not to bend or break. Beam braces have an extra long lap. Large bolts and lock washers hold all parts rigidly to place.

Besides the special design and extra strength that particularly adapts them for use in California, these plows carry the genuine John Deere bottoms, favored everywhere because of their wearing, scouring and pulverizing qualities.

Their John Deere Quick Detachable Shares save time and labor without sacrificing strength or close fit. Loosen one nut to take the share off. Tighten the same nut and the share is on tight.

The hitch on the No. 5 and No. 6 is adjustable—it adapts the plows for use with any standard tractor.

You can get the size to suit your tractor. The No. 5 plow is furnished in two and three-bottom sizes; the No. 6 in three and four-bottom sizes. Ten, 12 or 14 inch cut.

Ask your John Deere dealer to show you a John Deere No. 5 or No. 6 Tractor Plow. Investigate the special advantages these plows have to meet your needs. You will find them fully dependable for better and longer service in California fields, orchards or vineyards.

Get These Books

Write today for our free booklet describing fully the John Deere Light Tractor Plows. It has a message on tractor plow value that you will find profitable to you. Ask also for our big free book *"Better Farm Implements and How to Use Them."* Its 156 pages describe a full line of labor saving implements—(tells how to adjust and operate many of them). It is full of practical information that will help you. Put it in your library. Use it as a reference book. It will be worth dollars to you.

To get these books, mention the implements in which you are interested and ask for Package PT 13

John Deere Plow Company
San Francisco, Cal.

Tractor Belt Work

To Orchard and Farm:

What is the truth about using a tractor for belt power? It seems to me that there is a great waste of power when a big machine is used for running light machinery for which only two or three horsepower is required. And yet the tractor manufacturers seem to advocate the use of their machines for all kinds of belt work.—Fred Mills, San Francisco.

Tractor manufacturers are now realizing that it is a mistake to advise uses for their machines which are poor economy in the long run. The tractor buyer who has not electrical power for stationary work will naturally want to keep his machine at work just as much as possible, but to use a $1500 or $2500 machine of 15 or 20 horsepower to run a small feed grinder or wood saw is obviously more expensive than the cost and maintenance of a small engine to do the work. There is no reason why we should jump to the conclusion that the tractor is to displace the stationary engine.

There is one power farmer near Los Angeles, however, who does all his work with tractors from plowing heavy adobe soil to running the churn and washing machine. The machine which does the latter work is a little garden tractor which not only plows and cultivates the garden, but becomes, when needed, a small power engine on wheels, capable of moving from one job to another on its own power. Needless to say, the tractor which does the heavy field work is not called upon to waste its energy on jobs which are beneath its dignity! A mighty happy power-farming combination for a large farm is a big tractor, a garden tractor, and a six or eight horsepower portable engine.

If a tractor is to be used a great deal (rather than incidentally) for heavy belt work it may be well to select the machine with a view to its belt performance. While it is not altogether a hard-and-fast rule, one may say that the high-speed, multi-cylinder tractor engines are not as well adapted to belt work as the slower, two-cylinder machines with heavy fly-wheel. The term "belt-work" has unquestionably been greatly abused in connection with the tractor game.

Operating Heavy Machinery

The place where the tractor "shines" when it is employed for belt work is obviously in the operation of high-speed heavy farm machinery, such as ensilage cutters, saw mills, large grinding machines, hay presses and threshing machines. By making it possible for every grain or bean farmer to have an individual threshing machine, the manufacturers of small separators have merely taken advantage of the increasing popularity of the tractor. No one can belittle the importance of this feature of power farming.

In mellow black loam, a 14-inch plow, working seven inches deep requires as little as 500 pounds drawbar pull, while in stiff wet clay, working at the same depth and speed, as high as 800 pounds may be required.

A Tractor Lesson

To Orchard and Farm:

I am going to tell you about an experience I had with a tractor which may be the means of preventing a costly mistake on the part of other Orchard and Farm subscribers.

Aware of the power of my new machine I became very enthusiastic over deep plowing and by using a special outfit I plowed two fields over 12 inches deep—fields which had always been plowed with horses to a depth of about 6 inches. My disappointment was great when, after working the soil down carefully, I secured the smallest yields from these fields that they had ever given. The difficulty was, of course, that I had plowed up a lot of "new" soil, which was low in humus and in which the fertility, although high, was "locked up" by lack of exposure to the weather. It was not until the third year that I secured good yields from these fields, and then they became extremely productive.

I know now that I should have lowered the plows about an inch each year, exposing this new soil gradually, and the fields that I later treated in this manner were greatly benefited. When I have my entire place plowed deep and thoroughly subsoiled, I am going to practice moderately deep plowing for four years and then give each field a good deep tillage every fifth year—C. J. D., Visalia, Cal.

Tractors on Wet Ground

Unquestionably, the properly designed track-laying machine can operate on ground where the standard design of round-wheel tractor could make little headway. But the manufacturers of the latter insist, and with reason, that any piece of land which is too wet to support a tractor of moderate weight fitted with extension lugs, is too wet to plow with any kind of power. As a matter of fact early spring work is seldom delayed because of the inability of the tractor to work on wet soil. But should there be any delay, the increased amount of work that can be done when the ground is in the proper shape more than makes up for it.

By making it possible to do more fall plowing the tractor has greatly increased the production of the country, at the same time doing away with much costly spring work which has formerly had to be done in spite of adverse conditions.

Tractors Tipping Over

Occasionally a tractor turns over and some one is injured. The dealers in other types of tractors than the one involved usually make capital of the accident and ascribe it to faulty design. This is, of course, unjust, as such accidents, which are exceedingly rare, are more often due to carelessness on the part of the owner. It is not only carelessness in driving, sometimes, but carelessness in selecting the type for his particular work. The manufacturers of little "squat" tractors point out the disadvantages of the high, three and four wheel machines in this respect but the latter on the other hand speak of the discomfort involved in riding close to the ground in a dusty field. A low center of gravity and positive traction are undoubtedly absolute necessities on extremely hilly ground.

Ford Attachments

To the Editor of Orchard and Farm:

What is your opinion of the worth of the ——— "tractor attachment?" I propose to use such a machine for three purposes: (1) as a car to get about the country; (2) as a truck for hauling; (3) as a tractor for field work. Do you know whether the attachment is entirely practical?—O. S. W., Goldfield, Nev.

You will no doubt appreciate our position and understand that we cannot undertake to pass upon the merits of any certain make of tractor or attachment, as we would soon compromise ourselves. We can, however, give a few general observations which may be of assistance to you.

It is our experience that almost every farmer who buys a tractor attachment, eventually trades it in for, or sells it in favor of, a regular tractor with greater power. This does not always indicate that the attachment will not do what is claimed for it, but the buyer finds that it is intended only for light work and will not stand constant overloading. You should first determine whether you will be satisfied with the limitations of the attachment.

Another point to bear in mind is that it is not usually as simple a matter to convert the Ford from a truck to a tractor and back to a pleasure car, as is generally believed. These operations usually require considerable time.

No farmer should invest in a tractor attachment without a knowledge of its limitations; many are using them with good satisfaction.

Time Required for Care

An interesting discussion arose recently at a gathering of power-farming students at a technical school. This was on the question of care required for the maintenance of a tractor as compared to horses. Here are some of the various views which were supported by the statements of different manufacturers:

(1) When the tractor is in use as much time should be given to it each day as is required by the teams it displaces. The great advantage is that it requires no care when not working.

(2) About two-thirds as much time is required as for horses, provided the tractor is kept in first-class condition.

(3) A tractor which displaces 10 horses may be kept in splendid condition by devoting as much time to it as would be given to two horses.

(4) An average of 30 to 45 minutes a day should suffice to keep any tractor in first-class condition.

(5) Figuring the cost in a broad way, on the basis of work delivered per horsepower hour, a tractor requires one-eighth as much care as horses to do the same work.

Various others estimated the time required for care at from two-thirds to one-half of that needed for horses.

After the present harvest is gathered, French farms are to be almost stripped of horses suitable for military purposes. The American tractor has partially filled the gap resulting from the rapidly decreasing animal power of France.

Do you watch the machine carefully while working in the field? If a bolt drops out or a knock develops, a stop and a minor repair may save larger bills later.

J. I. CASE PLOWS

IN J. I. Case Tractor Plows the "drag" of furrow bottom and land slide pressure has been eliminated. All the weight of the frame is carried on J. I. Case dust-proof, easy-lubricating, long-distance wheels.

That's why this Tractor plow "rides" like a wheeled vehicle instead of dragging like a stone boat. That's also why more acres per day and deeper plowing are possible—and extreme fuel economy is attained.

In addition, the J. I. Case Tractor plow is easily handled from the seat of the tractor; has a simple, sturdy power lift; and enters and leaves the ground instantly, points first, like a walking plow. Thus less labor is required and a more uniform quality of work is done. The Tractor is made a more profitable investment.

See your J. I. Case dealer today. He is a dealer who will justify your faith as well as ours.

J. I. CASE
Horse Drawn Plows
Sulky, Gang, Walker models. World's lightest draft. Flexible beam and "floating" bottom insure uniform penetration and prevent shares from breaking. Strong, dependable, convenient.
See your J. I. Case dealer or write us.

J. I. Case Plow Works

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Kansas City, Mo. — Indianapolis, Ind.
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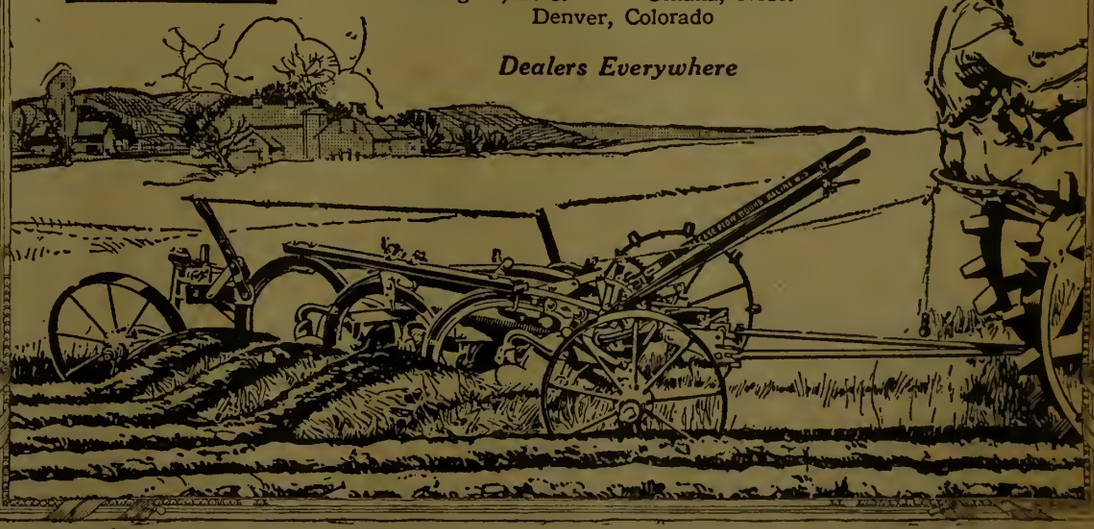
Dealers Everywhere

Reg. U. S. Pat. Off.



Ornamentals and Fruit Trees

CALIFORNIA NURSERY COMPANY — VERIFIED VARIETIES — NILES, CAL.

Catalog Sent FREE

We are offering this season a magnificent stock of fruit and ornamental trees, climbing plants, shrubs, vines and roses.

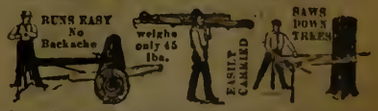
We have the largest experimental orchard of verified and tried varieties of fruit trees true to name of any privately owned orchard in the country and it is from this reliable source that we secure our buds and thus can vouch for the pedigree of our trees.

Write to us about planting plans, giving list of varieties wanted. We will furnish you with an estimate of the cost, together with valuable suggestions.

California Nursery Co. Estab. 1865
P. O. BOX 405 NILES, CAL.

SAWS ANY WOOD IN ANY POSITION ON ANY GROUND 4 in. to 5 ft. Through

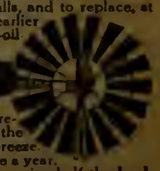
1 Man With a Folding Sawing Machine **Beats 2** MEN With a Cross-cut Saw
5 to 9 cords daily is the usual average for one man



Our 1917 Model Machine saws faster, runs easier and will last longer than ever. Adjusted in a minute to suit a 12-year-old boy or strongest man. Ask for catalog No. M96 and low price. First order gets agency.
Folding Sawing Mach. Co., 161 W. Harrison St., Chicago, Ill.

THE SELF-OILING WINDMILL

has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the geering of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.



We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.
Write AERMOTOR CO., 2500 Twelfth St., Chicago

The Genuine Germain's Hairy Peruvian Alfalfa Seed is Sealed and Stenciled!

Ranchers, dairymen and others who fail to place their orders for Germain's Hairy Peruvian Alfalfa seed at once, will be doomed to disappointment. The supply is extremely limited and the overwhelming demand will soon exhaust our stock.

It is the duty of every rancher to make his acreage produce to the utmost. Why be content with the old types of alfalfa when Germain's Hairy Peruvian will produce twenty percent more tonnage to the acre?

W. E. Alexander of Anaheim, Cal., writes: "Germain's Hairy Peruvian has produced nearly double the yield of the old variety. It has more leaves and less stem."

To obtain the best results buy only Germain's Hairy Peruvian—sold in sealed and stenciled sacks.

When you write mention this magazine

Inoculate seed with FARMOGERM before planting, and obtain a larger, better and earlier yield.

Germain
Established 1871
Seed & Plant Co.
N. E. Corner
Sixth & Main Sts.
Opp. P.E. Depot
Los Angeles, Cal.

Classified Ads—Continued From Page 34.

PATENT ATTORNEYS

HAZARD & MILLER, ATTORNEYS AT LAW—Patents and Patent Causes. Henry T. Hazard established the agency in 1878, which has been uninterruptedly in business since that time. Herman Miller, eight years examiner in U. S. patent office. Our library contains the record of every U. S. patent. Examination without charge. HAZARD'S 1918 BOOK ON PATENTS FREE. 504-505-506 Central Building, Sixth and Main streets, Los Angeles.

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CO-OPERATION (NOT OPERATED FOR PROFIT) reduces living expenses. Particulars and catalog from Co-Operative League, Commercial street, San Francisco.

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THE FAMILY BOOKLET—A treatise on the cause of our diseases; how to foresee and prevent them.

This is a scientific and interesting volume in condensed form and will be of great help to the sick as well as to the healthy.

Write now for a free copy to A. A. Gugliori, M. D., Postoffice Box 1299, San Jose, Calif.

WE WILL DELIVER for 15 cents six fluid ounces of "IAQUA," an excellent tonic, good for stomach, kidney and liver disorders. G. A. K. Company, 1637 Pierce street, San Francisco, California.

CHIROPRACTIC COLLEGES

BE A CHIROPRACTIC DOCTOR—7000 now practicing; new method of curing and preventing diseases. Catalogue free. Dr. Charles A. Cale, president, Los Angeles College of Chiropractic, 931 South Hill street, Los Angeles, Cal.

Hints for the Handy Man

System in Shop, Office and Field

This Feed Trough

Has a swinging door, which makes it possible to slop the pigs without having one's clothes and the surrounding scenery decorated. When the trough is being filled, the wire loop at the bottom of the door is caught with hook No. 1, at the front of the trough, and the bucket emptied behind the protecting barrier. Needless to say, it will not be long, after the management has opened the cafeteria by fastening the door back on hook No. 2, until the place is doing a rushing business.

Wooden Gaskets

In installing pumps and making other connections where water is moved through pipes under considerable pressure or suction, we have found that a home-made wooden gasket to go between pipe flanges will frequently prove far more satisfactory, and considerably less expensive, than the ordinary gaskets. Any kind of wood can be used, but the most satisfactory is usually soft, white pine, cut rather thin, and having as even a grain as possible. With a brace-and-bit bore holes of the proper diameter to accommodate the bolts; then cut out the center to the correct size and trim off the edges so that they will not stick out much beyond the rim of the flanges.

Such a connection will last indefinately and will not leak nor suck air, even under tremendous strains, provided the bolts are kept tight. The soft wood will be crushed enough to make a tight joint when the bolts are screwed down and after that the water will swell the wood so that leaking is utterly impossible. No other gasket could possibly be as tight, except perhaps one of leather. Even if the rim should crack, the water will swell the wood enough to make the crack tight.—D. J. W.

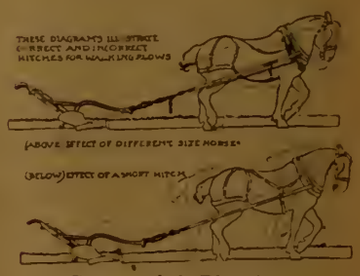
Cottonseed meal and "cottonseed feed" are two different things, buyers are warned. The latter contains the hulls and is not as nutritious as the straight meal. The meal has more protein and less fiber.

Irrigation Trouble

A curious accident in irrigating a vineyard recently was brought to my attention. This vineyard is on sloping ground and is irrigated through a cement pipe line. Naturally, a very careful adjustment of the outlets is required in order to assure an even distribution of water.

One line had not been used for several weeks and the leather gaskets at the outlets had dried and shrunk. The owner set the water one evening, opened the outlets just the correct amount (which was very little at the lower end), saw that the water was running properly and retired. The following morning when he inspected the system, he found a serious condition. The water had swelled the gaskets and as the gates were nearly closed anyway, the swelling shut them completely and checked the flow from all the rest of the outlets, so that there was a regular fountain coming out over the top of the standpipe at the end of the line and running merrily down through an adjoining orange grove.

Hereafter in setting water in a pipe line that has been dry for some time this farmer will assure himself that the gaskets have entirely swelled before he calls the job finished.—D. J. W.



Successful Plowing

Depends almost as much upon the the use of the proper hitch as upon the condition and adjustment of the implements. Dotted lines indicate effect of incorrect hitches; solid lines, correct hitches.

Upper diagram—dotted lines show effect of using one small horse without changing length of tugs. Effect: Draft is lowered at horse's shoulder, beam-end is pulled down and plow runs too deep. Remedy: Shorten tugs or lower clevis or both.

Lower diagram—dotted lines show effect of too short a hitch. Effect: Line of draft will be raised in proportion to the shortening of the tugs and plow point will be pulled out of the ground. Remedy: Lengthen tugs or raise clevis or both. (Too long a hitch will have the opposite effect.)

Sharpening Plow Shares in the Ranch Shop

The average blacksmith, after removing the share from the plow, plunges it into a big broad fire to heat preparatory to sharpening, ofttimes setting it on edge in the fire. This is wrong as it permits the heat to extend over the entire surface of the share, withdrawing the hardness that the manufacturers were so careful to conserve. It also causes it to warp and lose its original shape, causing annoyance in replacing the share on the plow. Most ranches are equipped with forge, anvil and blacksmith's tools. It is not difficult to sharpen shares on the place; in fact, some farmers will not trust their shares to the public smith.

To sharpen a plow share properly: Build a fire on the forge suitable for this particular work. This is done by banking the fire and allowing only a small opening in the side for the blaze and heat to escape. Commence with the point of the share. Insert this into the fire just far enough to heat the part you wish to draw, never permitting the heat to extend farther back than is absolutely necessary. Draw the point down to the proper shape and thickness, which should be as near the original bevel as possible. After the point has been finished, work back toward the heel or wing of the share, never heating more than 1½ inches from the edge and 2½ inches wide. It is important to keep hammering after the steel has changed from a red heat to a black as this makes the edge tough and hard, giving a wearing surface that will last much longer.

If once down the share is not sufficient, reheat, but confine the heated part to the above measurements. In working along the cutting edge, keep it straight. In so doing you will avoid having to go back and reset the edge

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Established Almost 40 Yrs.
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PHILADELPHIA SHOE Co
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Classified Ads Continued From Page 31

COMMERCIAL PRINTING.
1000 BUSINESS CARDS for $1; letterheads, envelopes, bills, wedding work, show cards, rubber stamps. ROBERT HILL, 2188 Sutter Street, San Francisco.
ASSAYERS AND GOLD BUYERS
GOLD, amalgam, rich ore bought, cash; assaying 6c. Pioneer Assaying Company, 1[illegible] Market street, opposite Palace Hotel, San Francisco, Cal.

Repairing Bolt-Holes

Frequently the wrenching, twisting and straining of farm machinery causes the bolt-holes to become enlarged or oblong in shape, with the result that the bolts break and cannot be held in place. Figure A illustrates a case in point. A good way to remedy such a difficulty is to place a bolt (covered with one or two thicknesses of paper) in the hole and pour babbit-metal around it. The paper makes it possible to drive the bolt out and a hole of the proper size to fit it is left. The rough pieces or edges of metal should then be dressed down. The repair will then appear as in Figure B.

This repair is especially useful where wood parts are involved, the babbit acting as a bearing for the wooden piece. For instance, the method may be used for loose wagon and cultivator tongues, beater and shaker arms on threshing machines, and in fact any worn or loose moving part. A supply of babbit metal is one of the most useful things to have on the farm. The old babbit should always be melted out of junked machinery and used again for repair work.—L. Beckham.

A Planting Method

To Orchard and Farm:

I submit herewith my plan for planting any crop which is sown in drills. I have deep bottom land which I do not irrigate.

The ordinary method of plowing, discing and harrowing leaves a fine mulch on top of the soil, but a crust soon forms underneath and the tap root is slow to penetrate.

I make a deep, pulverized seed-bed

with a cultivator instead of using the harrow. I plant corn in the rows made by the cultivator. As a result the plants send down tap-roots as soon as the seed germinates, securing more moisture and more plant-food and making a faster and heavier growth. The final result is a much higher yield.

Figure 1 represents a corn-plant taken from a harrowed field. Figure 2 is a plant taken from a field prepared by deep cultivation.—Edward M. Transne, Corning, California.

Fooling Boreas

One ingenious farmer who was bothered by the wind while spreading lime with a lime-sower, overcame the annoyance by fastening a piece of canvas, cut round, on the spokes of each wheel. This gave the effect of a solid wheel and prevented the wind from blowing cross-wise through the falling lime.

Haul Anything, Anywhere, With An International Motor Truck

A FARMER never knows how much speedy hauling means to him until he buys an **International Motor Truck.** Ben Campbell, Minnesota stockman and farmer, says, "Looking back now I do not see how we ever got along without our International. We use it all the time."

The illustration shows Mr. Campbell hauling one of his famous pure bred bulls to market.

He uses the truck to haul livestock, farm produce, and supplies, and keeps it busy. Any farmer who owns an International will tell you that it is a necessary farm machine — one of the busiest pieces of machinery on the farm, and used more days per year than any other. New as the motor truck is to the farm there are already stories of thousands of dollars worth of crops saved by motor truck hauls when railroads were overloaded. With a motor truck a farmer can sell in the best market and make his deliveries as promised. With an International he can haul anything, anywhere, any time.

It will pay any farmer to investigate the **International Motor Truck.** We have a dealer, a branch house, or a service station somewhere near you, where the line can be seen, or we will send full information promptly if you will write us.

International Harvester Company of America
(Incorporated)
Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

FULL LINE OF INTERNATIONAL HARVESTER IMPLEMENTS
Tractors, Cultivators and McCormick Harvesting Machines. Distributors Studebaker Wagons, Planet, Jr., Cultivators, Oliver Plows, etc.
B. HAYMAN CO., INC., 118-120 N. LOS ANGELES ST., LOS ANGELES.

TAKE YOUR SAMSON NOW
—Pay Balance When You Harvest Crop

The "Samson" has always been sold on an "all-cash" basis, but the abnormal demands upon the ranchers' cash just at this time—for war and other expenses—have led to the perfecting of arrangements by which a limited number of these famous tractors are to be sold on

LIBERAL TIME PAYMENTS

Food will win the war, and tractors must do the work. But your tractor must be efficient. The experience of thousands of users proves that the "Samson Sieve-Grip Tractor" will do more work at less upkeep and operating expense than any other farm traction engine. Make a "Samson" do your work—and let your crop complete your payments. This is a long-awaited opportunity and will soon exhaust our fall allotment of tractors. Make sure of yours by writing today for full particulars.

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157 North Los Angeles Street Los Angeles, Cal.

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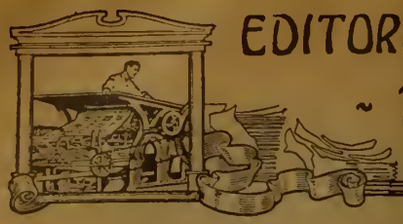
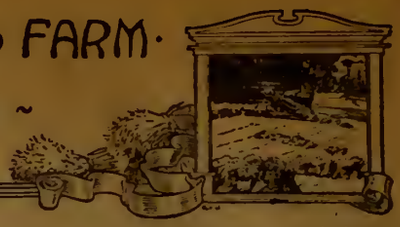


EDITORIAL DEPARTMENT OF ORCHARD AND FARM

~ TIMELY TOPICS AMONG FARM FOLK ~



J.C.Knollin, Editor

Our Editorial Policy

Farmers First

ORCHARD AND FARM is a magazine of, by and for agricultural people; standing by the food producer in all things; looking at life from his point of view. We recognize the proud position held by you who make your living from the soil. Your interests are our interests; your problems our problems; your struggles, ours.

To publish only that which is clean, helpful, interesting; to make the pages of this magazine a clearing house for useful ideas; to assist and entertain every member of the family; to deserve and keep the good will and respect of its readers—that is the policy of Orchard and Farm.

Big Things Ahead

"BACK EAST" was once the place where westerners went for seed, advice and culture. Now, more often than the Easterner likes to admit, the tables are turned. Eastern agriculturists are coming west to learn rather than to criticise, and they are interested, most of all, in our progressive methods of marketing.

The California Fruit Growers' Association, as the power of the citrus fruit industry, has been the model for hundreds of similar organizations throughout the United States, but even before farmers and students in other sections of the country were fully aware of its tremendous success, its shining example had been followed by many other classes of California producers. To name the list of interests which have separated themselves into distinctive co-operative associations would be to include the producers of almost every important California agricultural product. Not only the various groups of fruit, vegetable and nut growers have recognized the strength that comes with organized effort, but the different livestock men are working together as never before in the history of the State. Born of necessity arising from market manipulation by unnecessary middlemen, these organizations have expanded their operations to include purchasing, warehousing, shipping and education.

Mistaken Theories

This situation is viewed with alarm by certain "organizers" who are indulging in a dream of a great "Farmers' Union" or "League," which is to be national in its scope and which is to include every food-producer in the country. By means of such an organization, they insist, the farmers could wield an influence in politics capable of controlling the destinies of the nation. These theorists point out the waste of money and effort involved in the organization and maintenance of so many small associations, each working within its own restricted confines, and each incapable of exerting a telling influence on national problems.

The various "small" interests, nevertheless, continue to organize with surprising rapidity, and each of the projected national unions inevitably fails. There have been any number of such movements; a spectacular, but brief, entrance into politics usually marks the point where each commences to crumble.

But even were it not for this proclivity to indulge in political reform, the nation-wide, all-inclusive league is doomed to certain failure as long as it fails to take into account the problems of each individual and group of individuals who have allied interests. To promote such a scheme is like attempting to build a house from the roof down! We must lay the foundation first! The entire question of proper distribution and a square deal for the farmer is working itself out in the most natural way. In forming our small, "live" associations we are working, as we should, FROM THE INSIDE OUT.

Big Possibilities Involved

That there may eventually result from the evolution through which we are passing, however, a vast organization BUILT UP from the rapidly increasing separate interests, seems not only possible but probable. Such an organization would not need to be political in nature or act. Each member would be as free as the member of any other class of society to express his views at the polls. Such a tremendous machine would arrive at its state of being through having actually reached the very objectives towards which an unsupported, theoretical, made-to-order "union" could only strive indefinitely and ineffectually. When the National League of Farmers' Associations becomes a reality (and that time is not far distant), the country will suddenly awaken to find that the farmer has actually "arrived," has found for himself the elusive "square deal" which his various advisers have been so madly pursuing, and has achieved the position belonging to him as the producer of the source of all wealth. It will all come about naturally through just such small societies as the Ventura County, California, Bean Growers' Association and the Oswego County, New York, Dairymen's Association.

A Process of Evolution

Working at opposite ends of our great country, and confronted with entirely different problems, the members of these two organizations would not accomplish much if they had to depend upon the ponderous machinery of one great "Union." They have allied interests, it is true, interests which have to do with national problems. But they will arrive at the point of working together on these big problems when the Oswego dairymen combine with the milk producers in other counties of their State into the New York State Dairymen's Association and when this organization, in turn, co-operates with other State associations in a National Dairymen's Association. These far eastern and far western farmers will be able to assist each other when the Ventura Bean Growers are part of the State Bean Growers' Association, and this, in turn, a branch of a National Bean Growers' Association. The great Farmers' League will be composed of just such national associations as well as all of the various existing local "unions."

And each higher branch will be organized as the need is felt. The handwriting is on the wall! A movement greater than the powers which direct it is under way and rapidly gaining impetus. The two examples cited are already all but accomplished realities.

The Final Result

The National League, then, would be reached by the "top step" of all the various branches of agriculture. It could have its headquarters at Washington in a great Temple of Agriculture. This league might be built around the already existing Federal Board of Farm Organizations, which recently held a meeting described as "the most representative gathering of food producers ever held in the United States." A building such as we have mentioned has already been planned. It would contain the headquarters of each contributing or member organization. The function of the national board which would sit at its conference tables would be to further and safeguard at the Capital City the interests of rural America, so long subservient to those of better organized branches of society and industry, and to distribute the reports and publicity which would partly compose its propaganda of improvement.

Education a Big Feature

The possibilities are limited only by the education of our food producers. This is being accomplished in two ways; first, by driving deep into the minds of the young people in our schools and colleges the spirit and principles of co-operative effort, and second, by the personal observation on the part of older men of the success already attained by existing organizations. This is perhaps the strongest force of all.

Yes, America is undergoing an awakening of which many citizens will not be aware until it is entirely accomplished. Then some day not only the profiteers but all legitimate dealers and business men who are dependent upon the products of the soil (and who is not included in the latter class) will suddenly discover that the meek giant which they have led about by the halter and made to "do tricks," at their bidding, has become an independent, self-respecting, fair but fearless fighter, well aware of his own tremendous power as the very backbone of the nation, and demanding a square deal for American farmers. Then who will dare deny him that which is his due?

City and Country

One of the most masterful comparisons of farm life and city life is that of Addison, who in 1712 wrote:

"The mind is stunned and dazzled amidst that variety of objects which press upon it in a great city. It cannot, therefore, apply itself to the consideration of those things which are of the utmost concern. In retirement, everything disposes to be serious. In courts and cities we are entertained with the works of men; in the country, with the works of God."

A field well tilled; a silo well filled; a cow's hunger stilled; a canner that's skilled; a ship that we'll build; a gunner strong willed; a submarine grilled; a doughboy well filled, better drilled and more skilled; ten more Germans killed!

"The farmers are the ones who are making money" is a phrase we hear everywhere. "Interesting, if true," comments Uncle Wiseacre, "but most generally it's in spite of and not because of."

You have INVESTED in Liberty Bonds; now GIVE to the Red Cross and to the United War Work Campaign. For a willing gift, however small, bringeth its great reward!

Sunflowers

Sayings of Solomon Smith

(Being the tactful teachings of a friendly Farm Adviser)

Dairy Advice

A wise farm adviser is Solomon Smith
His answers are noted for humor and pith
He lives all alone with his pipe and his dogs
And knows agriculture from haying to hogs.

"What do you do when the cow won't give down?"
Was the query received from old Farmer Brown.
The adviser replied, with a wink at his pup,
"If the cow won't give down, you had better give up."

Getting Ahead

"Discouraged" complains, I've worked 'til near dead
"In my big cabbage patch, but I can't get a-head."
To which the Adviser right promptly replies,
"I've told you before that you must fertilize."

"You can't starve your plants without starving yourself.
"You're on the wrong track, Sir, to garner the pelf.
"I'll venture to say, if you live 'til I'm dead,
"You'll never have more than just one cabbage head."

The Cause

"Something is wrong with my pet apple-tree,"
Said Jones on the wire. "It's a great mystery.
"The apples have all disappeared over night.
"It must be some new and most terrible blight."

The wise Farm Adviser did not need a book
To diagnose this. He said, "Just take a look
"In the orchard at midnight; I think you will see
"It's acute small-boy-itis that's troubling your tree.

And the Cure

"This pest always gets in its work in the night
"And is very destructive, and swift in its flight.
"Very few orchards, if any, are free;
"It always attacks the most valuable tree."

"There's only one remedy known to be sure,
"And I'll guarantee it to kill or to cure!
"A spray of rock salt, applied by moonlight,
"At the seat of the trouble will clean up the blight."

A Difficult Problem

"Say, Bill, I guess we'll have to build a fire under 'em!"

"Not much, we won't. I tried that th' other day, and they moved up jest far enough to burn up th' wagon!"

Verdant

What an interesting man your grandfather must have been! And did he attain a green old age?

Well, I should say he did! He was married four times after he was ninety!

Reasons why Styleplus Clothes are worn everywhere

Because they are stylish in appearance—designed and tailored by experts.

Because they are built for service—carefully constructed of good materials that can be depended on to wear well.

Because they are moderate in price—enable you to dress well and practice thrift.

Styleplus are manufactured on the standardized plan—a few grades in big volume, with costs reduced and clothing values increased.

At the price, each grade is always an exceptional value.

There is a big advantage in buying clothes at a store. You can *see* the different styles, try them on, and make the best selection. You can be certain of the fit *before* you order the clothes.

So make your pick today at the Styleplus Store in your neighborhood.

Two grades in Styleplus suits: $25 and $30.

Three grades in Styleplus overcoats: $25, $30 and $35.

Sold by one leading clothing merchant in most cities and towns. Write us (Dept. AK) for Styleplus booklet and name of local dealer.

HENRY SONNEBORN & CO., INC. Founded 1849 Baltimore, Md.

Styleplus Clothes $25-$30-$35

TRADE MARK REGISTERED

Each grade one price the nation over

America's only known-priced clothes

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this years production of eggs, so if you wish to try this great profit maker write E. J. Reefer, poultry expert, 3747 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

Fertilize All Crops with Nitrate of Soda

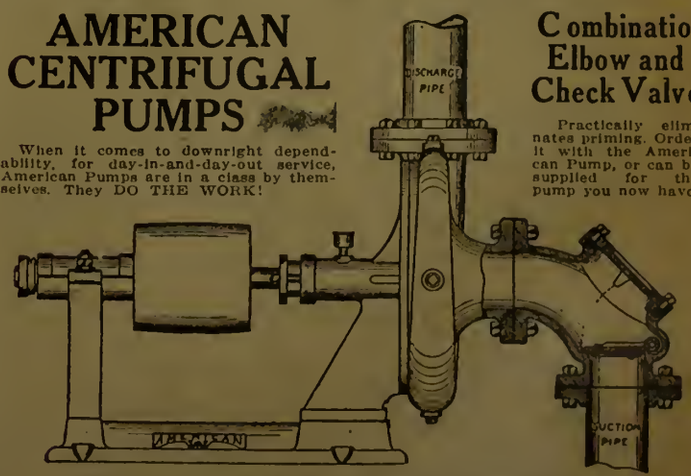
Small quantity per acre will increase your production and income.

Write or call for particulars.

NITRATE AGENCIES COMPANY
Henry Booksin, District Manager
518-519 Bank of San Jose Building
SAN JOSE CALIFORNIA

AMERICAN CENTRIFUGAL PUMPS

When it comes to downright dependability, for day-in-and-day-out service, American Pumps are in a class by themselves. They DO THE WORK!



Combination Elbow and Check Valve

Practically eliminates priming. Order it with the American Pump, or can be supplied for the pump you now have.

Write for Catalog of Centrifugal Pumps

If your water problems can be solved with any pump, they can be solved with an American. These pumps are designed to meet every possible condition. They get the MOST water at the LEAST cost and with the LEAST TROUBLE. Put your irrigation problems up to irrigation experts. Also write for our Catalogs of Motors, Gas Engines and Oil Engines.

CALIFORNIA HYDRAULIC ENGINEERING AND SUPPLY CO.
69 Fremont St., San Francisco. 425 East Third St., Los Angeles.

5 Cents an Acre Cash

Texas school lands for sale by the State at $3 an acre. 5c an acre cash, and no more for 40 years, but 3 per cent interest; send 6c postage for further information.
INVESTOR PUB CO., Dept. I, San Antonio, Texas

GOOD PROFITS TO AGENTS

Cabbage Cutter with 6 Knives

that always keep sharp, slices cabbage and all other vegetables easily and rapidly. Sent prepaid for $1.00; 2 for $2.00. L. [illegible]ER BROS., Elkhart, Ind.

The Wonder Pump

Guaranteed 5 Years

The Wonder Pump Is a Wonder Because

1—It requires less power than other pumps.
2—Has only five working parts and is simple to operate.
3—It will outlast several centrifugal pumps.
4—It saves its price in power consumed.
5—It will pump air and water at the same time.
6—It needs no priming.
7—Takes up little space and is very compact.

Why use a centrifugal pump when you can purchase a Wonder Pump at the same price?

Immediate Delivery Guaranteed

Jackson Rotary Pump Co.

50 Eighth St. **San Francisco.**

Vote Down Single Tax

Single tax means just what it says—a tax on land only.

Single tax would release from taxation in this State four and one-third billions of dollars.

Single tax would release from taxation valuable franchises of railroads, securities and franchises of all big corporations, improvements of all kinds, including the large buildings in cities.

With all this wealth released from taxation, where would the burden fall?

The load would be carried by the landowner. Farm lands would undoubtedly have their taxes trebled if single tax prevailed.

Farmers are patriotically engaged in raising food stuff to help win the war. This is no time to change the tax system and penalize the farmer because he owns land.

Single tax has been voted down three times in California during the past six years.

Vote it down decisively this time and kill it once and for all.

Vote NO on Amendment 19.

Starting With Purebreds

By the Editor of Orchard and Farm

THERE never was a better time to commence improving the farm livestock and poultry or to get into the purebred game. I once visited a ranch where stock and poultry of all kinds were kept, and where every animal on the place was registered or eligible to registry. At the top of the owner's letterhead appeared the following imposing array:

Jersey cattle; Duroc-Jersey hogs; Percheron horses; Hampshire sheep; Black Minorca chickens; White Collie dogs.

Even the dogs were purebreds! And the surprising part of it was that this man had not made a big outlay all at once, but had built up all his stock gradually, in some cases commencing with only one purebred animal, and using a neighbor's sire or that of some well-known breeder, until the stock increased sufficiently to justify the purchase of sires.

While the average California agriculturist, more particularly if he is specializing in fruit-growing or some other line, will not get into the breeding game on this scale, still you know and I know that the average general farm stock is too often a mixture of everything. The farm flock of poultry is liable to include four or five breeds and cross-breeds; the milch cows are often nondescripts; the farm mares bred to different and indifferent sires; the hogs, a fine mixture acquired by trading and cross-breeding.

The man whose place I visited was an ordinary general farmer who had not intended to get into the breeding game on an extensive scale, but who had gradually replaced all his grade and mixed stuff with purebreds and found the plan so satisfactory that he became a dealer in each class of stock and built up a good business. I asked him to tell me how a farmer should go about it to improve his stock.

"The great mistake most of us make," he said, "is in waiting too long to get started. Had I begun to improve my stuff twenty years ago when I first began to farm, instead of recently, I would have been independently wealthy by now. Smith, my neighbor, has twenty-seven head of cattle, all of which are descendants of one old cow, with which he commenced farming. They are an average lot of scrubs, worth about the prevailing market price for meat. Had this one cow been a purebred Holstein, Jersey or Guernsey, bought at a little higher first cost, Smith, if he had given his cattle care and study, would by now have a herd worth at least $10,000. The difference in his service fees in breeding to a good sire as compared to nondescripts would have amounted to practically nothing. If he had used similar methods in building up all his stock and poultry, his farm would now not only be more profitable, but his chattels ten times more valuable, and his place many times as attractive.

"There are many ways to get started. One can build up a grade herd or flock by using registered sires, or he can buy one or more females already bred to good blood, and depend on outside sires thereafter until the animals have increased. I question the advisability of anyone who has not had experience with purebreds attempting to break into the game with a big "splash," by investing heavily in registered breeding stock. I advocate, rather, building up from what is on hand or from a small beginning. But make a start if it's only by getting some purebred baby chicks! No more scrubs for mine!"

To Tell the Age

Of cattle by their teeth, follow the accompanying diagram, which illustrates the standard that has been adopted by the management of the San Francisco International Livestock Show, as the means of correctly classifying entries in the carlot classes.

The Arizona State Fair, which will take place at Phoenix, November 11 to 16, promises to be the greatest exhibition ever held in the State and representative of the tremendous progress made by Arizona in the past few years.

Information About Hogs

The farmer who is familiar with pork-production, as well as the novice at the game, will find much of value in the recent free publications which have been prepared in connection with the "more pork" campaign. Among these may be mentioned:

Swine Management (Farmer's Bulletin 874); Feeding Hogs in the South (Farmers' Bulletin 411); Breeds of Swine (Farmers' Bulletin 765), Movable Hog Houses (Secretary's Circular 102); Hog Houses (Farmers' Bulletin 438); The Self-Feeder for Hogs (Farmers' Bulletin 906); Hogging Down Crops (Farmers' Bulletin 614); Hog Cholera, Prevention and Treatment (Farmers' Bulletin 834); Tuberculosis of Hogs (Farmers' Bulletin 781); Pig Clubs and the Swine Industry (Yearbook 1917, Separate 753).

All of the above publications may be had free of charge from the United States Department of Agriculture, Washington. Library Leaflet Number 2, also published by the Department, gives a list of recognized books on the subject of swine growing.

The University of California Agricultural Experiment Station has also issued a number of valuable pamphlets on the same subjects, which may be had by writing to Berkeley.

Proprietary medicines for "curing" hog cholera are worse than useless; nothing but proper vaccination is effective.

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California International

All is set for the opening of the big California International Livestock Show at Twelfth and Market streets, San Francisco, on November 2. The show will be held for nine days (from the 2nd to 10th inclusive). This event is an important one in the annals of California livestock history, for it marks the establishment of a representative "far-western" exhibition which promises to become as important relatively as the Chicago International in the middle-west.

There will be a large amphitheater, seating five thousand people with two tiers of boxes. Here the horse show and a livestock parade will be given daily. In addition there will be the different departments for cattle (dairy and beef), horses, sheep, swine, poultry and rabbits.

It is the object of the prominent men who have formed the California International Livestock Association to aid the Food Administration and the Government in producing more and better beef, mutton and pork as well as to encourage the breeding of better horses.

Home-Made Hog Tonic

First Farmerette: "Why does the farmer feed coal to his hogs?"

Second Farmerette: "Why, don't you know? When they are butchered the meat will cook in about half the time usually required!"

While there is some question as to whether the heat-producing qualities of coal when taken internally by the porkers, are as pronounced as this, there is no doubt about its merit as a conditioner, especially when combined with other minerals and given regularly. One successful hog-raiser uses the following mixture, which furnishes the small amount of salt required by hogs and at the same time assists in ridding them of worms:

1 bu. .....Soft Coal
1 bu .....Ashes
8 lbs.....Salt
4 lbs.....Sulphur
4 lbs.....Air Slacked Lime
2 lbs.....Copperas

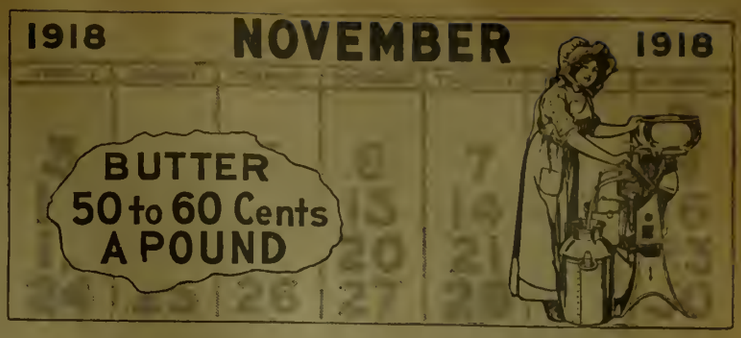
Mix all the ingredients except the copperas. Dissolve the copperas in a quart of warm water and add to the mixture. This mixture should be kept before the hogs at all times. A self-feeder compartment or a trough can be used for this purpose.

Cow Eats Nails

The eating of nails is a pastime usually attributed to ostriches, and might reasonably be expected as one of the problems to be encountered in the conduct of an ostrich farm. That dairy cattle, however, will indulge perverted appetites by consuming such delicacies is a matter of more surprise.

Two of the most noted Ayrshire cows of America which recently died, were found, upon post-mortem examination, to have eaten pieces of wire and nails. One of the animals was Oldhall Beauty 8th, owned by Adam Seitz, Waukesha, Wis., and the other was Willowmoor Moss Rose C. of Weymouth Farms, Massachusetts.

The organized cottonseed producers have agreed with the Food Administration that the price of cottonseed shall be stabilized at the rates existing last year, which will make the price from $64 to $72 a ton f. o. b. cars.



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The morale of the army is of supreme importance and the greatest military authorities of the world are enthusiastic in their praise of the organizations which make it their business to keep the soldier in good spirits.

This work, like that of the Signal Corps, has been more highly developed in this war than ever before. Huts for amusement, comfort and recuperation of the fighting men are in the trenches as well as behind the lines. The unarmed workers go about their duties under shell fire as coolly and as self-forgetfully as the telephone men of the Signal Corps who are frequently their neighbors, and who keep intact, often under a hail of bullets, the indispensable lines of communication.

It is for us who remain at home to support these unarmed heroes to the utmost, with our gifts, our labor, and our unbreakable morale.

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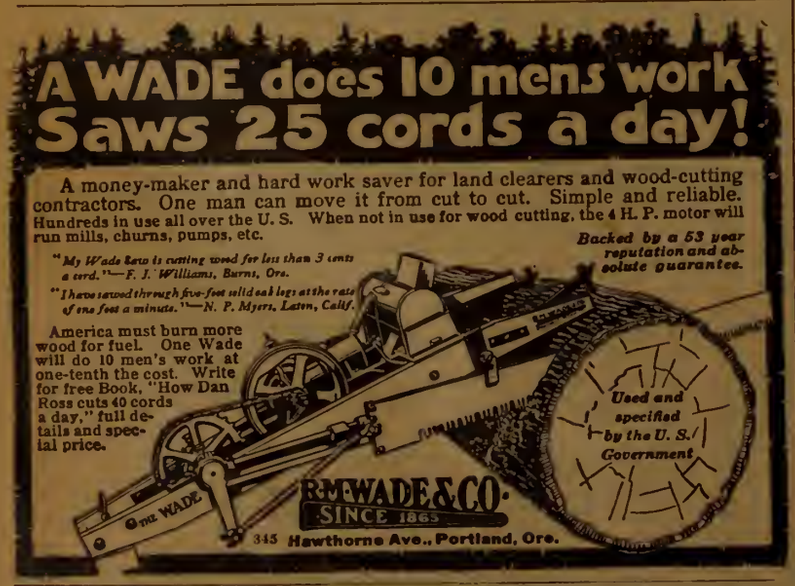

Hardy W. Campbell's valuable book, "Progressive Agriculture," is being offered for sale, including three years' subscription to Orchard and Farm, for $1.25. Mail your order today.

Boys, Here's a Profitable Hobby

Did You Ever Eat Guinea Pig?

If not, you have missed a pleasing delicacy, but many boys are making money out of cavies by selling them for use in medical research work.

MOST modern farm lads are raising "real" pigs, but where is the boy who doesn't have a few pets? If the pets are capable of furnishing pocket money as a little side line, so much the better. If you are interested and decide to go into the "business," first write to the United States Department of Agriculture at Washington, D. C., for free Bulletin (525) on "Raising Guinea Pigs," which gives a great many "tips" about them. Few animals are as easily raised as guinea pigs. They are much less subject to disease than are rabbits.

A Patriotic Service

Guinea pigs are fit for any table and are receiving much attention now in this connection. There is another war-time use, however. This is in medical research, especially in testing antitoxins and serums. Such medical research work has greatly increased in importance since America's entry into the world war.

The guinea pig, in being made to help, confers a direct benefit upon the American soldier. Therefore the guinea pig is doing his bit, and persons who enter the industry of raising guinea pigs likewise help to meet a war-time need.

In medical research immature animals weighing 250 grains (nearly nine ounces) are required. This weight is attained in about six weeks. In past years the average price of a guinea pig has been from 50 to 75 cents, but reports have been received recently of laboratories paying from $1 to $1.50 because of the scarcity of suitable stock. Persons favorably situated near cities or institutions requiring large numbers of guinea pigs may establish a profitable business in supplying them.

Guinea Pigs as Food

Guinea pigs are seldom eaten in the United States, but they are closely related to rabbits and are wholly vegetarian in habits. The small size of the domestic species, is the chief cause for its neglect as a food animal, yet other highly esteemed game animals furnish less meat than a guinea pig.

The Peruvian method of dressing the guinea pig for cooking is the one generally adopted. The animal is killed by dislocating its neck, after which it goes through about the same process as a suckling pig in preparation for cooking. Its throat is cut, it is hung up for a few minutes to bleed and is then scalded in water that at first is not too hot. The hair is removed, the skin scraped with a knife, the entrails taken out and the carcass washed in tepid water. The Peruvians usually roast the animals, but the number of possible ways of cooking them is unlimited. A traveler in Peru states that they are excellent eating when cooked in any of the ways commonly applied to small game.

Management of Pigs

For all purposes, except exhibition, the only kinds of guinea pigs that should be grown are the smooth-haired varieties. These are of several colors. If guinea pigs are raised for table use, light-colored kinds are to be preferred; if for scientific purposes, color is of less importance, although distinctive markings are desirable, and some institutions prefer the light colors. The chief point in selecting stock is to obtain healthy animals that will mature quickly and attain good size.

Guinea pigs require about the same kind of accommodations as rabbits. They also require about the same diet. They eat frequently during the day, and should have a constant supply of staple dry food. A pan of water, a piece of rock salt and a pan of dry grain should be constantly available. Some green food should be fed.

The rearing of guinea pigs requires no extraordinary knowledge and no great outlay of capital, little space is needed to acommodate the animals, which are hardy and easily managed. They make interesting pets and satisfactory food animals. The constantly increasing demand for them in scientific investigations and medical research work insures a good market. One Southern California breeder who has had considerable experience with the Cavies recommends the cream-colored English Selfs as the most satisfactory and the most in demand in this State at the present time. The various clinics, medical colleges and serum manufacturers are buyers.

Ridding the Fields of Stumps

Some Valuable Information About Burning

THAT there is no "best method" of clearing land of stumps is generally conceded; the system which is best adapted to conditions must be used. The use of cut-over land as pasture for a few years before attempting to cultivate it, is one of the most common ways to handle such areas, assuring the owner of some returns while the small growth is being cleared out and some of the stumps are decaying. With some encouragement, the native grasses will usually establish themselves.

Destroying stumps by means of burning is an economical method and is widely practiced, but if this method is used care must be exercised in order to destroy the roots, so that they will not interfere with cultivation.

A common method of preparing a stump for burning is to dig two holes on opposite sides of the stump to a depth of about 30 inches. Connection is usually made at the bottom of these holes by digging away the wall of earth between them. Any adhering earth is scraped from the tap root and a fire started in one of the holes. If the fire is kept up it will burn most of the objectionable underground parts of the stump. Another method successfully used in the long leaf pine area of the south is to dig a hole on one side of the stump, and with a one and one half or two inch auger bore a hole diagonally through the stump from the opposite side to the bottom of the hole. A fire is then started in the excavation and the auger hole

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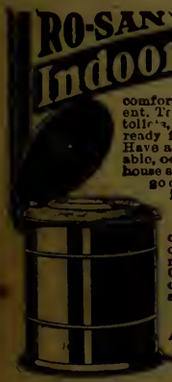

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serves as a flue. A method largely used in the northwest is to bore a hole horizontally into the base of the stump to a point a little beyond the center. Another hole is started as high up on the side of the stump as possible and bored downward at an angle until it meets the first boring. A fire is started at the interception by the use of oil, pitch or coals or by dropping a hot iron attached to a wire into the hole. After the fire is started brush is piled about the stump.

Shooting 'Em Up

Dynamite is widely and successfully used in removing stumps. Small charges are found useful in splitting stumps which can then be burned more readily. Larger charges are used to break the stump in pieces, so that they may be pulled easily, or sometimes to remove them from the ground entirely. The best time to blast stumps is when the ground is saturated with water, and the electrical method of firing blasts is recommended.

Where a large number of stumps are to be removed the use of a stump puller is recommended. There are two general types; those that pull the stump from the side, such as a capstan type, and those that lift the stump vertically out of the ground by the use of a tripod.

The U. S. Department of Agriculture has recently published a very comprehensive bulletin on the subject of stump removal, with which every farmer who is confronted with this problem will find of value (Farmers' Bulletin 974). Practical and detailed information on the handling of blasting powder may be secured free from the manufacturers of this important agricultural commodity, while the manufacturers of various types of stump-pullers issue instructive circulars which may be had for the asking.

Using Old Ties

The practice of burning old railroad ties is to be discontinued, under orders from the Federal director, and they will, in addition to other methods of distribution, be given to farmers in exchange for work in plowing fire-guards, mowing the right-of-way or erecting snow fences. They will also be sold to the public at reasonable prices. They are useful, not only as fire wood, but for sills, fence posts, gulley dams (to prevent erosion) and other purposes which will occur to the farm handyman. In some localities, cabins, similar to log houses, have been constructed of railway ties.

Saving Seed Easy

Save garden seeds for next year, is the advice of the food conservationists. By marking the best plants and allowing them to make seed, drying the seed carefully, storing in tight packages, and labeling the containers carefully, the gardener will not only insure his own supply, but perform a real service by increasing the depleted output of seed, which, it is feared, may scarcely be able to meet the demand next spring.

Foiling the Rats

A rainy day job: Put tin around the feed bins where the rats are most likely to gnaw through. And plan a campaign against the rats. An inverted lard pail or large can over the supports of the isolated granary will be effective, unless a ladder or any other means of entrance is left near the building. Rats are good jumpers!

It is as much the duty of the consumer to eat less as it is the duty of the farmer to produce more.

Food saving was at first a fad; then a patriotic service; now a habit.

Your guarantee of real winter underwear satisfaction

HANES

This label on every garment. Buy none without it.

GUARANTEE
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PUT the fleecy warmth of Hanes Heavy Winter Weight Union Suits or Shirts and Drawers next to your skin—and, you're fit to face the stiffest blast the North can let fly! Get the friendly hug of the elastic knit, long-fibre cotton, and prove how perfectly Hanes gives-and-takes with every body movement!

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Illustrated above are Hanes Shirts and Drawers—for many years the American standard at popular prices! Note the snug-fitting, three-button, sateen waistband.

Greatest underwear for boys! Hanes Boys' Union Suits exceed in quality, workmanship and service any boys' underwear we have ever seen. They combine the features of men's union suits with the cosiest warmth.

If your dealer does not have Hanes, write us at once.

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Warning to the Trade—Any garment offered as Hanes is a substitute unless it bears the "Hanes" label.

Protect your spindles with Mica Axle Grease. It forms an even, slippery coating which prevents friction and makes easier pulling—no hot boxes—just like putting ball bearings on your wagon. And it lasts twice as long as common axle grease. Get a can from your dealer today.

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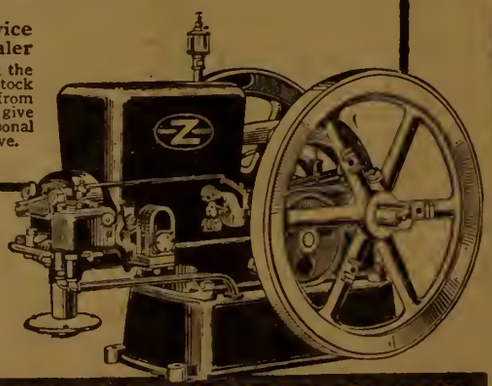

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I inspected the field from which this seed was harvested and certify the variety to be

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I also personally sealed this package and sealed this certificate on same. Each seal contains my initials.

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Make Sure of Your Peruvian Alfalfa Seed This Year

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Every bag of Hairy or Smooth Peruvian which we sell has been officially inspected and bears originally signed tag—a fac-simile of which appears in this ad.

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"More Poultry"--Uncle Sam

IT IS easy to grow enthusiastic over increasing farm poultry production when we think of the process in terms of broiler on toast, stewed hen with dumplings, stuffed, roast chicken or 'strictly fresh" breakfast eggs. Moreover, the enthusiasm grows when we consider that meat prices are soaring, and that excess eggs may be traded for staples at the store at prevailing market prices. Mr. Peters, who writes this article, is one of the California poultry agents of the U. S. Department of Agriculture.

By Arthur A. Peters

BEFORE the war is over civilians may be practically without meat unless we produce sufficient poultry and eggs to supply the tables of the nation.

This is neither an idle dream nor a threat It is an actual condition, pointed out by the Federal Food Administration!

Consequently every farmer, by producing eggs and poultry for his own table, not only fulfills an obligation to his family, but helps to solve the food problem of the nation and the Allies. The red meats may be frozen and canned for use of the army and our Allies; the more perishable eggs, which are far more nourishing, pound for pound, may best be consumed at home.

One hen of the meat variety, if her eggs hatch properly, if the chicks develop well, and if time is allowed for the last chicks hatched to reach maturity, is capable of producing one ton of poultry meat in a year as to egg production. Since there are flocks in which the hens average over 200 eggs per year, it may be said that one hen will produce the meat for 100 nutritious meals. This is allowing two eggs for the meal, as against eight ounces of meat. Thus we

A WORKER! 250 EGGS A YEAR.

DAMAGING EVIDENCE

Early molt; pale, small, shriveled comb; yellow shank and beak; creamy earlobes; pelvic bones heavy, rigid, close together; thick hard skin, underlaid with fat; shallow, narrow body; neat, clean plumage.

A SLACKER! NOT A SINGLE EGG.

A SAFE ALIBI

Late molt; large, red, silky, plump comb; white shanks, beak and earlobes; thin, loose skin; absence of hard fat; thin, flexible, wide-apart pelvic bones; deep, full body; rough plumage.

find that one small hen, weighing perhaps six pounds, can produce in a year concentrated food equal to 800 pounds of meat, and do it on less than 100 pounds of feed!

The Farmer's Aid Is Needed

That is why Uncle Sam says every farm should increase its production of poultry products. It is recognized that the desired increase must be brought about on the farms. The small, backyard city flock will do its bit, but the big results, to come quickly, must be brought about on a larger scale

I can definitely assure farmers who have not handled poultry extensively that, because of the ideal conditions existing on almost every farm, poultry can be made to pay a greater profit than any other side-line. The green feed, large numbers of insects, healthful surroundings and waste feed which can be utilzed afford conditions for maximum production with minimum care and expense.

Our market for food will not end with the war, for it will be our task to supply that essential to the peoples of other nations for many years—until they can bring their land and their stock back to normal productivity.

It Pays to Keep Good Birds

By using standard-bred stock we will attain the most satisfactory results Scrub chickens deserve a place on American farms no more than scrub livestock. The general campaign which is being conducted throughout the country will increase the demand for pullets from towns and cities, and the farmer will find a ready market for his excess producing stock. The agricultural colleges of the U. S. Department of Agriculture, through the Washington office and its various branches, have for free distribution a large amount of the most up-to-date poultry lore, designed to show how to increase the profits obtainable from poultry. It is realized that the surest means of creating a greater interest in poultry is to show the farmers how to make more money from their flocks. Right methods pay, and are usually easier in the long run than haphazard methods. Are you informed on the newest practices and the most economical use of substitute feeds? If not, all branches of our organization stand ready to assist you and urge you to take advantage of their services

How to Cull Out Boarder-Hens

A HEN, in order to lay well, must have a sound body. Vigor and health are the first considerations; they are indicated by a bright, clear eye, a well set body, a comparatively active disposition and a good circulation.

Among the finer indications, yet among the most valuable, in picking the high layer are the fineness of the head and the closeness and dryness of feathering. The head of a high layer is not coarse. The wattles and earlobes fit close to the beak and are not loose and flabby. The face is clean-cut. The eye is full, round and prominent, especially when seen from the front. The high layer is trimmed; that is, the feathers lie close to the body. After heavy production, however, the oil does not keep the plumage relatively as sleek and glossy, but rather it becomes worn and threadbare.

Furthermore, the bird must be free from physical defects, such as crooked beak, extremely long toe nails, eyelids that over-hang so that the bird cannot see well, scaly leg or anything else that might keep the bird from seeing or getting an abundance of food.

Changes in Color

A hen which is laying undergoes a number of changes. Among these are color or pigmentation changes. These should be observed by daylight. The laying fowl uses up the surplus fat in the body, especially that in the skin. In yellow skinned breeds this loss of fat can readily be detected by the loss of the yellow color. The different parts of the body tend to become white, according to the amount of fat stored in the body and the amount of circulation of blood through that part. These phenomena occur in the order named:

(1) The vent changes very quickly with egg production. A white or pink vent on a yellow skinned bird usually indicates that the bird is laying, while a yellow vent means a bird is not laying. It should be recognized that all yellow color changes are dependent on the feed, coarseness of skin and size of bird. A heavy bird fed on an abundance of green feed or other material that colors the fat deep yellow will not bleach out nearly as quickly as a smaller or paler yellow bird.

(2) The eye-ring or inner edge of the eyelid, bleaches out a trifle more slowly than the vent. The earlobes on Leghorns and Anconas bleach out a little more slowly than the eye-rings; a bleached earlobe, therefore, indicates a slightly longer or greater production than a bleached vent or eyelid.

(3) The color goes out of the beak, beginning at the base and gradually disappearing until it finally leaves the front part of the upper beak. The lower part bleaches faster than the upper, but may be used for judging when the upper part is obscured by horn or black. On the average colored, yellow skinned bird, a bleached beak means heavy production for at least the past four to six weeks.

(4) The shanks are the last part to bleach out and hence indicate a much longer period of production than the other parts. The yellow goes from the scales on the front of the shank first and finally from the scales on the rear. The scales on the front of the shank, rear of hock joint, are the last to bleach out and may generally be used as an index to the natural shade of yellow color of the bird. A bleached out shank usually indicates fairly heavy production for at least fifteen to twenty weeks.

The yellow color returns to the vent, eye-ring, earlobes, beak and shanks in the same order that it went out, only much more quickly. A vacation or rest period is sometimes indicated by the end of the beak being bleached and the base being yellow.

Changes in Form

A laying hen has a large, moist vent showing a dilated condition and looseness as compared with the hard, puckered vent of a non-laying hen.

Do Hens Lose Their Heads?

The Slackers Do When the Farm Flock Is Judged By This New Standard Which Tells You

How to Select Good Layers

The entire abdomen as well as the vent is dilated so that the pelvic arches are wide-spread and the keel is forced down away from the arches, giving large capacity. The more eggs a bird is going to lay the following week, the greater will be the size of the abdomen. The actual size of the abdomen is, of course, influenced by the size of eggs laid and by the size of the bird.

Heavy production is shown by the quality of the skin and the thickness and stiffness of the pelvic arches. Fat goes out also from the body, and the heavy producers have a soft velvety skin that is not underlaid by layers of hard fat. The abdomen in particular is soft and pliable. The thicker and blunter the pelvic arches and the greater the amount of hard fat in the abdomen, the less the production or the longer the time since production.

Minor Indications

The comb, wattles and earlobes enlarge or contract, according to the condition of the ovary. If the comb, wattles and earlobes are large, full and smooth, or hard and waxy, the bird is laying heavily. If the comb is limp the bird is only laying slightly and when the comb is dried down, is not laying at all, especially at molting time. If the comb is warm it is an indication that the bird is coming back into production.

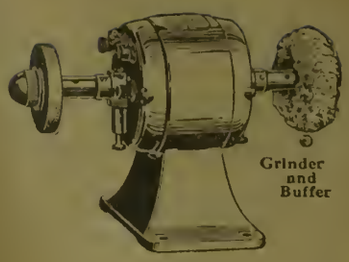
Molting and Laying

When a hen stops laying in the summer she usually commences to molt. The later a hen lays in the summer or the longer the period over which she lays, naturally the greater will be her production, so that the high producer is the late layer and hence the late molter. The length of time that a hen has been molting or has ceased laying can be determined by the molting of the primary feathers. It takes about six weeks completely to renew the primary feathers next to the axial feathers and an additional two weeks for each subsequent outer primary to be renewed.

Temperament and Activity

A good layer is more active and nervous and yet more easily handled than a poor layer. A high layer shows more friendliness and yet more elusiveness than a poor bird. A low producer is shy, stays at the outside of the flock and will squawk when caught.

While these characteristics deal specifically with the current year's production it should be borne in mind that a high producer one year is, generally speaking, a high producer in all other years.



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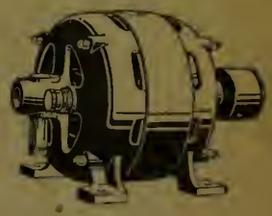

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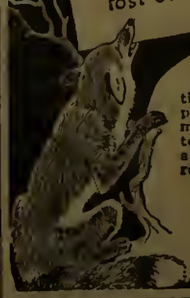

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Gambling With Old Jupiter

California Orchardists Learn Some Hard Lessons

By Robert W. Hodgson

OLD MAN EXPERIENCE, the world's greatest teacher, is saying "I told you so" to the fruit growers who bet against the stacked cards of the God of Rain. In this article, Mr. Hodgson, who is one of the citrus experts of the California Agricultural Experiment Station, points out the lessons of the past three years and describes the methods which, when properly applied, have weathered the lack of storms.

MUCH of California's great orchard acreage is dry farmed. The winter rainfall is usually sufficient, if conserved, to carry the trees through the following summer and fall in a satisfactory condition. No one can deny that our dry-farmed orchards have, taken by and large, been conspicuously successful. Indeed, this very fact has brought with it a false sense of security.

As the planting of orchard trees has gradually encroached on the great grain-farmed tracts where there is less rainfall, the conservation of moisture has necessarily attained greater importance. The farmer who has not realized this has, of course, paid a more or less severe penalty. The California farmer has been so blessed by nature that he has failed to hold to the water conserving methods of farming so rigidly followed by those who, in other "dry" areas, are struggling to wrest a living from the soil.

Extended Drouth

In many parts of the State this season has been the third and the worst in a succession of dry years. Each year the fruit grower has made the standard comment about the "unusual season" just experienced, and has predicted that the next winter would be a wet one.

Each summer the reserve of soil moisture has been depleted below the point to which it was replenished during the following winter. This last season was the latest on record. In many parts of the State, ten and eleven months elapsed between the last rain of spring and the first one of fall. And still few farmers worried about soil moisture conservation. For those who were willing to see, however, the handwriting was on the wall. This spring we were confronted with a series of abnormal events. In the first place, many of the trees did not leaf out properly but were late and irregular. Delayed bloom and failure to set fruit were common. "Little leaf" and "dieback" occurred to an alarming extent in many sections.

Effects Are Apparent

Later in the season it became apparent that much of the fruit was undersized while more recently the trees in many sections began to lose their leaves and become dormant long before the usual time. The simple fact is this: The season has demonstrated better than anything which has occurred for years that our average standard of care in fruit farming operations is too low.

Good orcharding means leaving the land in the fall after the harvest season is over in such a condition that it will absorb every drop of winter rain. In many, probably most, of our orchards the land is left perfectly smooth and compact following the summer cultivation, and under the surface is a plow-pan that is almost as impervious to water as a macadam road.

The Cover Crop

Another and even better practice for winter rain conservation lies in the use of a winter cover crop. This crop should preferably be a legume which has the advantage of adding nitrogen to the soil and at the same time tends to break up the plow sole by its deep rooting habit. Such a crop will aid in holding winter rainfall and in addition furnishes in California the cheapest and best method of fertilizing.

An Example of Poor Orchard Practice

Leaving the ground in this condition after or during a period of extended drouth is almost sure to result in disaster.

Good orcharding means maintaining a large amount of organic matter in the soil, through the use of either a green manure crop, barnyard manure or bean-straw. The latter, of course, is now being conserved for feed. Good orcharding means plowing deeply, early enough in the spring to turn under that cover crop while it is still lush and green and before it has drawn to an injurious degree on the stored water in the soil. More harm than good often results from a cover crop turned under too late. Good orcharding means not permitting the land to lie in the rough for any length of time in the spring. The most successful growers get on the soil and work it down to a good mulch as soon after plowing as is practicable.

Better Methods Pay!

After late spring showers, good orcharding means getting on with the cultivator and breaking up that crust which is so rapidly drawing water out of the soil. Frequent and thorough summer cultivation whenever the dirt mulch has become compacted is one of the first principles of good orcharding.

And what are the rewards? They are the certainty of a good crop of large sized fruit, the knowledge that the trees are healthy and thrifty, and the feeling that you have done your part in your food producing partnership with Nature.

Harvesting Apples

An experienced grower describes the methods which have proved most satisfactory on his ranch.

THERE are many patent bags and baskets for picking apples, but I have found nothing better than the common 10-cent market basket. It is cheap, light and pliable and doesn't bruise the fruit. We line and cover them with gunny sacking, which is held in place with baling wire bound around the upper edge of the basket

It is a mistake, we have found, to attach the picking vessel to the workman, because it hinders him from getting in between the branches and its constant weight is an unnecessary burden. A far better plan is to provide the vessel with a hook, so it can be hung from a limb of the tree, leaving the hands of the picker free for work. A serviceable hook can easily be made of galvanized wire, doubled and twisted around the handle of the vessel, a small nail preventing it from slipping off.

A Satisfactory Ladder

The style of ladder we have adopted is one with wide-spreading legs and a moveable brace which comes to a point at the lower end. For side-hill work this brace may be shortened eight to fifteen inches, depending upon the length of the ladder and the steepness of the hill. For very large trees it is necessary, of course, to provide long ladders without braces which came to a point at the upper end, so the ladders can be thrust in among the branches.

We have found lug boxes most satisfactory in cultivated orchards. These are strongly made, have handholds in the ends and strips nailed across them so that they may be piled one above the other. Regular apple boxes cannot be used in cultivated orchards if they are needed afterwards for packing, because they become too badly soiled, especially if left out in a rainstorm. However, if carefully handled, they can be used in an orchard seeded to grass or clover.

A low truck with bolster springs is what we use to haul apples to the packing house. The truck is provided with a level platform twelve feet long and five feet wide which projects out over the wheels and holds three rows of boxes, set crosswise. Three dozen boxes can be handled at a load, without piling them up.

Time to Harvest

Our experience has demonstrated that the time to pick apples is as soon as the stem parts easily from the twig. If apples are picked too green many of the fruit spurs will be broken off, lessening the next year's crop. We demand of the pickers that the apples shall be laid, not dropped, into the picking vessel. They may be poured from the latter into the boxes, however, if care is exercised.

Our system for "keeping tab" on pickers is to give each one a number and provide him with a quantity of slips of paper on which the number is printed, stamped or written. One of these slips is placed in each box, enabling the overseer not only to keep an account of the number of boxes which each workman has gathered, but to keep tab on the kind of work each picker is doing. Whether they shall be paid by the box or by the day depends on the pickers, the [illegible] and the overseer and is decided by taking all these factors into consideration.—O. H. Barnhill, Ashland, Oregon.

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A Home Cure Given by One Who Had It

In the spring of 1893 I was attacked by Muscular and Inflammatory Rheumatism. I suffered as only those who have it know, for over three years. I tried remedy after remedy, and doctor after doctor, but such relief as I received was only temporary. Finally, I found a remedy that cured me completely, and it has never returned. I have given it to a number who were terribly afflicted and even bedridden with Rheumatism, and it effected a cure in every case.

I want every sufferer from any form of rheumatic trouble to try this marvelous healing power. Don't send a cent; simply mail your name and address and I will send it free to try. After you have used it and it has proven itself to be that long-looked-for means of curing your Rheumatism, you may send the price of it, one dollar, but, understand, I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer when positive relief is thus offered you free? Don't delay. Write today.

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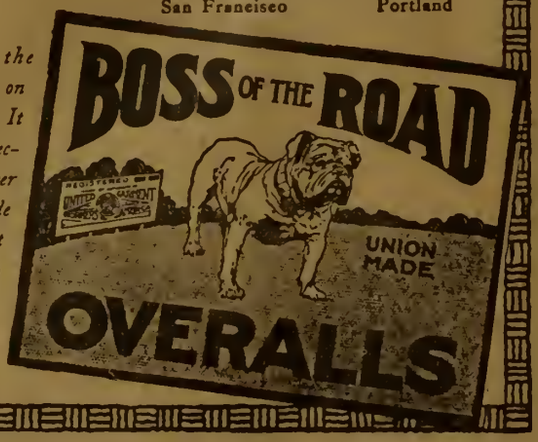

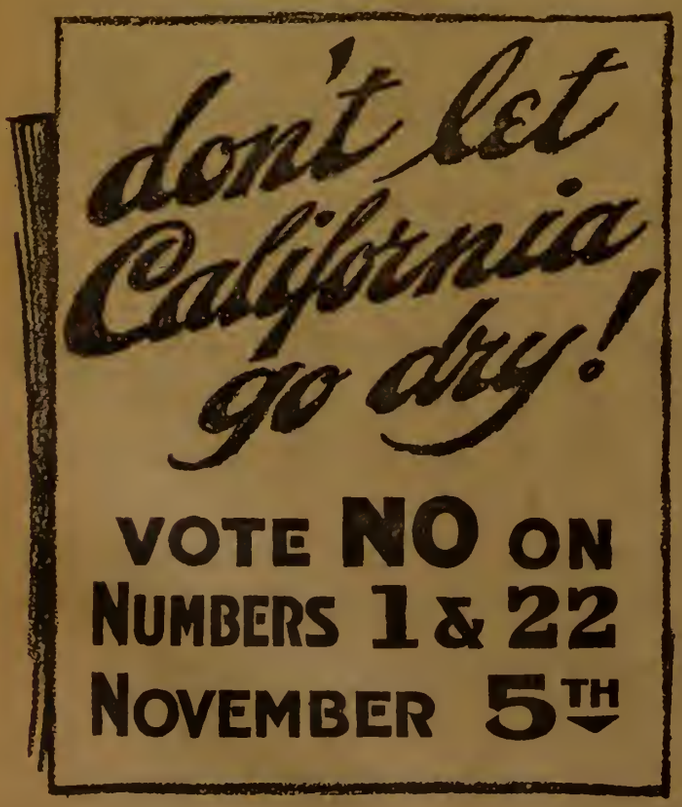

Classified Ads—Continued From Page 34.

LUMBER—Building Material

EVERYTHING FOR THE BUILDER — All kinds of second-hand building material; doors, windows, lumber, shingles, corrugated iron, cement trays at the lowest prices, send list and get estimates country orders and carload lots a specialty. H. McKevitt & Son, Wreckers, 1849 Mission street, near 14th, San Francisco, Cal.

LUMBER BARGAINS for poultry men and farmers. Woodhead Lumber Co., 5800 South Main street, Los Angeles, Cal.

WANTED—Agents, Salesmen

WANTED—A good live boy or girl in each territory to handle the agency for Orchard and Farm; good money to the right party and a good growing business; costs nothing to secure full details. Address department P. Orchard and Farm, P. O. Box 136 Los Angeles, Cal.

ENGINES

SEVERAL NEW AND SLIGHTLY USED ENGINES. ARNOTT & CO., Implements, 112 South Los Angeles st., Los Angeles.

Baart Instead of Barley

(Continued From Page 7)

acre. This wheat was planted on reclaimed land in spite of the warning of the experts who had conducted experiments with the wheat that this and river bottom land were the only types of soil on which there might be some doubt of the wisdom of planting Early Baart wheat on account of its rank growth and consequent liability to lodge. Moreing Brothers, however, state that they entertain no fears in this direction.

A Severe Test

An interesting experiment was recently conducted on a quarter section of my company's own land, near Chico. This land had been rented for eight or ten years at a nominal figure, being regarded as fit for nothing but pasturage and similar to thousands of acres used for that purpose throughout the State. The land had been appraised at $6 an acre, or $960 for the entire tract, by a man thoroughly posted on values in the vicinity. Eighty-eight acres of this tract produced 512 sacks of Baart wheat. At $3.75 a hundred, the crop brought $2636, or almost three times the appraised value of the entire quarter section. The wheat weighed 63 pounds to the bushel. Especially since it was accomplished in a season of adverse conditions, this showing should furnish food for thought to owners of similar lands who have done nothing more than pasture them.

Early Baart wheat grown in Colusa County produced yields much above the average and of a quality so superior to local wheats that after inspecting it Professor B. A. Madson of the University Farm at Davis, the Colusa County Farm Advisor and one of the Government wheat inspectors then on a visit to California have since been recommending this variety to the farmers of Yolo, Colusa and Glenn counties. H. W. Keller of Los Angeles harvested some 2400 sacks of this wheat from 249 acres. As the wheat weighed well over 63 pounds to the bushel, Keller held it for seed at a fancy price.

The Present Campaign

No attempt is being made to revolutionize the whole program of wheat growing, but rather it is hoped to stress a few of the factors of first importance. First and foremost is the question of good seed, true to type. The farmers are being impressed with the folly of sowing seed that is not true to type because of its inevitable deterioration and decrease in yield year by year. The mills of California find that today only 15 per cent of the wheat that reaches them is true to type, while fully 40 per cent of it is normally fit for nothing but chicken feed.

The part played by drainage is being especially explained. After the dry springs of recent years, the grain farmers of California are apt to forget that in a year of heavy rainfall thousands of acres of wheat may be actually drowned out, or that the land may become so badly baked that anything like a normal production becomes impossible The expenditure of a few dollars an acre for drainage, they are being advised, will frequently be more than offset by the increased yields from one season's crops.

Those who are conducting the present campaign believe there are thousands of acres in barley that should be in wheat. The grain farmers have become alive to the fact that today a sack of wheat is worth two sacks of barley and accordingly the present has proved to be the psychological time to suggest a change from barley to wheat. Conditions clearly warrant it.

Secretary Lane's Article

(Continued from Page 7)

timber from the swamp lands, to construct houses and barns, erect fences, lay out roads and townsites; and, in fact, to do all the work necessary to reclaim America's No Man's Land and make it suitable for human habitation. Then, and not till then, each returned soldier will be given the opportunity to pick out a farm home of his own, to be paid for in long-time payments, at a low rate of interest, covering 30 or 40 years. Farm implements and necessary stock will also be provided by the Government, to be paid for in a similar manner over a period of from 5 to 10 years. It will be noted that there is no element of charity in the plan. The men do the work, make their own homes, and then pay for them.

No More Pioneering!

One feature of the plan which should not be overlooked is the fact that the central idea of these reclamation projects will be "group settlements." No longer will a settler be asked to pioneer his way through many long, weary years on an isolated farm far from other human beings. Each project will contain numerous townsites, each surrounded by attractive and productive 40 or 80 acre farm homes, under conditions of security and independence impossible under the old order of settlement, where every man was expected to take care of himself. The plan will follow on a broad scale the similar plan which is now being worked out so successfully in California under the State land settlement act.

Naturally there are a thousand matters to be taken into consideration if the Nation is to be ready to take advantage of its opportunity when peace is declared. With a small appropriation of $200,000, the first step has been taken by organizing a force of experts to make a preliminary survey and investigation of our land resources. The western half of the country has been placed in charge of F E. Weymouth, Chief of Construction of the Reclamation Service; the northeastern section in charge of F. W. Hanna, a former consulting engineer of the Reclamation Service; and the southeastern section in charge of H. T. Cory, an engineer formerly connected with the Harriman interests. These men and their assistants are in the field gathering the data which will be presented to Congress at the next session.

In addition, the Government has secured the services of Dr. Elwood Mead, of the University of California, who will have charge of settlement problems. (Dr. Mead has written many articles for Orchard and Farm. —Editor's note.) All these men are under the direction of Mr. Arthur P. Davis, Director and Chief Engineer of the Reclamation Service

With the country as a whole united in support of the plan, it is not too much to expect that when the data regarding the location of the proposed projects and the approximate cost of acquiring the land and constructing the necessary works have been digested and presented to Congress, funds will be made available which will make it possible for the United States to initiate the greatest conservation movement in the history of the world, to provide work and homes for hundreds of thousands of virile American citizens, and to add an untold amount to the wealth of the Nation.

Concerning Peat

Don't be misled into expecting wonderful results from peat as a fertilizer It has its uses but also its limitations. Before buying peat, write to the University of California Agricultural Experiment Station for Professor Burd's circular on "Peat as a Manure Substitute."

"The farmer's share" too often proves to be only the plowshare

Single Tax Debate

Kern's Argument

(Continued from Page 5)

open? No! There would be as much wasted as was harvested. There is a great deal behind successful farming that a poet and a writer does not know, and the solution of it will never originate in the mind of a city-bred man who has not had the practical experience of a farmer.

Evidence of Wild Theorism

The propaganda of the Single Taxers abounds with such statements as this: "Millions of acres are being held out" and "Land speculators are gorging the farmers with high rents." Just stop and consider how many "millions" of acres you know of that are being so "held out." The second statement likewise indicates their impracticability. You know that but a small part of the leased land is rented for cash, instead it is leased on a crop-share basis, and one-fourth or one-third at the most goes to the owner.

Reason or Treason?

I am appealing to each of my readers as individuals. I am not trying to propose farming on theory. They, in pretending to appeal to you from a patriotic standpoint, make use of our national flag on a great deal of their literature. They tell you that to increase the taxes on land will win the war. They urge you to increase these taxes so much that the State will in a short time become the owner of all the land and you will rent from the State because Single Tax, by its increase in taxation, will take the "full rental value." How is such a procedure to "help win the war?" The man who makes such a statement does nothing short of rendering comfort and aid to our enemy. This is how Single Tax operates: As the land is sold for taxes (and this is what they tell you will happen with every unimproved piece of land in a short space of time) it is bought in by the State for five successive years, during which time no one can get the right from the State to use it, and the State cannot sell it to any individual. If the taxes as proposed under the Single Tax plan were accumulated with penalties and interest for the entire five years, the cost of the land would be far greater than its present value, and during these years the State each year would show a greater deficiency in operating revenues. This, they, tell you, will "help win the war."

An Expensive Experiment

Single Tax has been tried in Vancouver, where now any amount of land can be purchased for a song, but even at this present small first cost, no one buys it because of the terribly depressed state of business and because of the great number of tax sales and mortgage foreclosures which have absolutely killed industry in general and driven away the old residents instead of bringing in new ones. In theory Single Tax may be all right, but in the few places where it has been tried it has been found impracticable.

In our many great irrigation schemes it has been absolutely necessary for some one man or set of men to own large acreages of land because it would be impossible for the smaller man to go to the enormous expense necessary to put the water on his individual holding. In previous years the Single Taxers have pointed to the [illegible] holdings of certain big land owners as being offenders against our rights, and have made the statement that this firm's lands are not for sale at any price. In the city of Los Angeles during the past six months, and throughout a considerable portion of the southern part of the State, large [illegible] of these lands have been widely advertised and offered for sale. If [illegible] certain lands in the oil districts have doubled many times and

(Continued on Page 30)

Be Sure to

VOTE

On November 5th

No farm work can be too pressing, no weather too bad to keep you from voting on Tuesday, November 5th.

If nothing else, your duty as a patriot and citizen should prompt you to visit the polls that day.

The United Dry Forces of California ask your vote and active support

For These Men

For Governor

WM. D. STEPHENS

Former Mayor of Los Angeles—then Congressman—now Governor of California. As Congressman, he voted in favor of submitting the Dry Amendment to the Constitution of the United States; as Governor, he favors ratification of that Amendment.

For Lieut. Governor

C. C. YOUNG

Member State Assembly, ten years; Speaker (Presiding Officer) of Assembly, six years. His record in the Legislature has been one hundred per cent good along temperance lines. Along all other lines he has been one of the most efficient men there.

If you favor the ratification by the Legislature of California of the National Dry Amendment—already ratified by fourteen other States—we ask you to vote for Wm. D. Stephens and C. C. Young.

D. M. GANDIER,
Secretary Ratification Committee.

Coffee and Tea Sale

10,000 lbs. fresh roasted coffee on sale at 5 lbs. for $1.00.

Teas! The finest kinds. Java, Ceylon, Famosa, Oolong, English Breakfast. Regular 85c, now on sale at, lb., 50c, 5 lbs. $2.20

We guarantee every pound. We make this offer to reduce our stock and place in your hands before the tax is levied.

Send your orders as soon as possible to

Del Morris Sale Co.

2320 Mission Street,
San Francisco, Cal.

Save money and harness for war

Leather is scarce and harness expensive because of the war. Make your harness last longer with Eureka Harness Oil. Gives new life to leather. Replaces natural oils dried out and protects leather fiber from dust, sweat and moisture, which cause rot. Keeps harness strong, flexible and jet black. No animal oils in "Eureka"; rodents dislike it and won't gnaw harness dressed with

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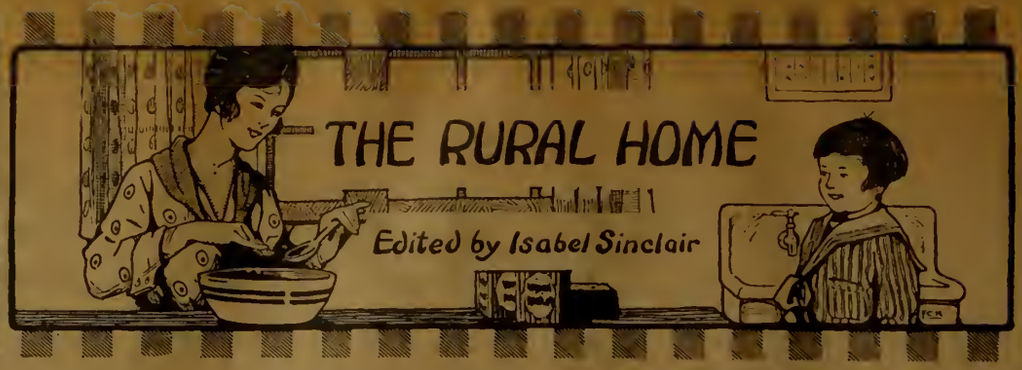

DEAR FRIENDS: The one thing, the big thing, the all-absorbing influence which is shaping our very lives and excluding all other topics is war. It will be agreed, I am sure, that "nothing else matters" until autocracy is dethroned forever. And it is on the assumption that every reader of this department is more interested in the winning of the war than any other topic, that I am devoting its columns to matters of conservation and the more economical use of food and clothing.

No one can presume to define woman's part in the winning of the war; but even the greatest generals agree that while the men are "carrying on" the great conflict, it is the women of the world who are "carrying" it, yes literally carrying it on their shoulders and in their hearts. To womankind's many burdens has been added this most terrible one, and there is no lad in the trenches more brave than the mother, wife or sweetheart who sent him away with a smile and then, with head held high, proudly and with determination set about to do her bit at home.

The home is admittedly the most important unit of civilization and as the maker of the home, woman's part in the winning of the war is unlimited. When the guns of the Huns are silenced and our boys are back among us, victorious, to the American woman will be paid the tribute among countless others of feeding millions of people overseas who might, but for her efforts, have starved. And so we must not for a minute slacken the efforts we have made towards the conservation of food, nor fail in a single duty to our gallant fighting men.

New Carrot Recipes

Numerous inquiries have come in regarding a variation in the use of carrots. The following suggestions are given:

Carrot Soup

1 pint milk; 1 cupful cooked carrot pressed through a strainer; 2 tablespoonfuls butter or a substitute; 1 tablespoonful onion juice; 1 tablespoonful minced parsley, celery or celery salt.

Heat the milk and combine the other ingredients. Heat them and add to the heated milk.

Carrot Loaf

1½ cupfuls ground carrot; 1 cupful boiled rice; 1 cupful ground peanuts; 1 cupful milk; 1 egg; salt, pepper; 2 tablespoonfuls minced pepper, red or green; 3 tablespoonfuls minced bacon or other fat; 1 tablespoonful onion juice; ½ teaspoonful mustard.

Mix the ingredients in the order given, and bake the loaf in a moderate oven for 1 hour. Serve it with tomato sauce if desired.

Tomato Sauce

1 cupful strained tomato juice; 1 bay leaf; 1 tablespoonful butter; salt, pepper; 1 tablespoonful flour or corn starch.

Carrot Souffle

1 cupful white sauce, medium thickness; 1 cupful carrots, boiled and mashed; 1 tablespoonful minced onion; 2 eggs; salt, paprika.

Add the carrot, the onion and the seasoning to the white sauce; then add the beaten egg yolks and beat the whites of the eggs until they are stiff. Fold them lightly into the first mixture, and turn this into a buttered baking dish. Set the dish in a pan of hot water and bake the souffle in a moderate oven for 30 minutes. Serve it at once from the dish in which it was baked.

Carrot and Apple Pie

1½ cupfuls diced cooked carrots; 1 cupful diced tart apples; 1 cupful sugar; 1-3 cupful raisins; 1 tablespoonful vinegar; ½ cupful water; 1 tablespoonful butter; nutmeg and vanilla.

Where above recipes call for sugar, use as much substitute as possible, such as honey and syrups.

Uses for "Rags"

Underwear and hosiery may be used for wash cloths, dusters, dustless mops, braided and woven rugs.

Badly worn sheets, pillow cases and parts of muslin underwear after being laundered may be torn and rolled into bandages and dressings for first aid chests or Red Cross work.

Parts of old table cloths may be recut for luncheon cloths, table napkins, doilies and runners.

Worn towels make good wash cloths. Worn Turkish towels make good padding for kitchen holders.

Worn curtains make good padding for ironing board or dish cloths.

Pieces of woolen goods, percales and ginghams may be used for patchwork quilts.

Grandma used to tell us that pins have their place but that place is not substituting for hooks and eyes, snaps, or buttons.

The home canning army is going over the top! Every indication points to making the 1,500,000,000 quart goal set for this summer's objective.

We are urged to use more cocoanut. The shells are used for making gas masks.

The Old Reed Rocker

You know how soiled and shabby it looks. Why not treat it to a nice coat of paint? Perhaps you want it an ivory to go with a bird's-eye maple dresser, or apple green to make a bright spot in your bedroom, or black so you can use some lovely vivid cretonne on the seat cushion.

First, clean it thoroughly with warm water and soap and let it dry over a day. Get just ordinary house paint and thin with turpentine until the paint can be well worked in between the reed. Paint back and front, top and bottom, till it is all covered. Don't let the paint gather in drops; work it all in smoothly. Two coats may be enough; you might need three.

Broken places in the chair can be mended before painting. Perhaps it will also need some glue in the joints.

And when it is all done, I know you will agree with me, that it is worth the effort. Try it and see.—Nellie M. Killgore.

Honey Apple Marmalade

Cook tart apples until smooth. Add one pound of honey to two pounds of fruit. Cook until about like cake batter. Then put into jars without sealing. In a few weeks it can be cut out.

Tomato Paste

As a space-saver in canning and a time-saver in cooking, tomato paste will commend itself to the thrifty housewife. By getting rid of the water in fresh tomatoes it is possible to pack all the food value, flavor and color in one-tenth of the original space. One can preserve the paste in any size bottle, and cork or seal it for use in soups and sauces. One teaspoon of paste will make one dish of soup.

Making Plain Paste

Boil the tomatoes until soft. Crush thoroughly and pass through a fine sieve or screen to take out the skins and woody portions of the pulp. Place the pulp and juice which pass the screen in a shallow pan and boil down gently over a slow fire to a thick consistency. Then place it over hot water or in a slow oven where the heat is not sufficient to cause the paste to stick to the bottom of the pan. Allow the pulp to evaporate until it reaches the consistency of peanut butter. While it is still hot, add about 2 ounces of salt to a gallon of the paste and pack into hot scalded jars or bottles. Sterlize in a wash boiler from one-half hour to an hour.

Preparing Dried Paste

Spoon paste into plates or pans in thin sheets and dry thoroughly in a very slow oven at a temperature of 130 to 140 degrees until it can be cut in squares or rolled in sheets. Store carefully in moisture-proof containers.

Flavored Tomato Paste

To one gallon of tomato juice and pulp prepared as above, add two sliced onions, two buttons of garlic, one bay leaf and two or three Chili peppers. Boil down over a slow fire until it thickens and then concentrate over a steam bath or on the back of the stove to a thick paste. Beat in olive oil and salt to taste. Store in jars or cans. Sterlize as directed for plain paste.

Removing Ink Stains

Ink stains can usually be removed from colored fabrics by soaking the stain in either sweet or sour milk; but unless the colors are fast they will probably fade to some extent.

As soon as possible after spilling the ink, the spot should be put in the milk. As the milk becomes discolored it should be poured off and replaced by a fresh supply. It will take a day or two to remove all the stain. If the material is gathered together just above the stain and wrapped tightly with many turns of cord, the milk will not spread and disfigure so large a portion of the garment.

Red ink may be removed by soaking the stain in clear water to which ammonia has been added. The water will need to be changed several times.

India ink may be removed by washing the material in a warm soap solution.

Don't use dull and uninteresting colors for the children's clothes. Children like bright colors and bright colors react on the youngsters' dispositions.

"Cash and Carry" savings equal the interest on a safe investment.

Correct for Winter

SIMPLICITY of style is the keynote of the smart little hats and turbans which will be worn this fall and winter. Black is very much in vogue. This smart design is of beaver, the material rather than the trimmings constituting its adornment and the cost is, therefore, moderate.

Prices of hats, like those of all other wearing apparel and goods, seem to be soaring, and a good many of my friends are buying thrift stamps with the money they have saved in having old hats trimmed over. Economy has always been a virtue but just now it has reached the distinction of being "the thing."

Green Corn Pudding

This is a delicious way to serve either sweet corn or the tender field corn. A little sugar may be added to the field corn, if desired.

Husk and silk 12 good-sized ears of corn. Slice off half the kernel with a sharp knife, and with the blunt edge of the knife, scrape out the milky part that remains on the cob Add a tablespoon of butter, salt and pepper, and ¾ cup of milk. Bake for 45 minutes, allowing it to brown on top. This makes a creamy dish, which is best served in the pan or baking dish in which it bakes.

Green Tomato Pie

A green tomato pie may be made as follows· Line a pie pan with pie crust, place in it a layer of thinly sliced green tomatoes, sprinkle with sugar, cinnamon, and a little flour, repeating until the pan is full. Spread a crust over the top, make a few steam holes in it, and bake in a moderate oven until the tomatoes are well done, or about 35 minutes. A teaspoon of butter or other fat dotted over the pie before the top crust is added makes the pie richer.

Time's Fingers

Dear, kindly digits, with what gentle grace
Thou smoothest wrinkles from the infant's face;
The years go by. Hath he offended, then,
That thou grav'st wrinkles on that face again?

Every sign proves that home-canners have reached the goal, 1,500,000,000 quarts. This, by the way, includes the home pantry, for the Government needs most of the commercial pack for the army.

Conservation is the All-American [illegible] army of four million soldiers [illegible] from this year's crop

"That's the Kind of Fruit You Want"

"And that's the kind you'll always get from us. Of course they can't all be 'firsts'—there is bound to be a runt here and there—but you'll get the biggest percentage of first grade fruit if your trees are always in prime condition—as ours are."

"You see—the reason that we are successful with our trees is because we start them right. When we plant we blast out the holes with

HERCULES DYNAMITE

That loosens up the soil and gives the young trees a chance to get their roots well started. The trees need nourishment and can't get all they need unless the ground around them is loosened more thoroughly than it can be with a spade. Then, when the trees begin to bear we keep the ground around them well loosened by blasting between the rows every year or so. This keeps them in good, healthy condition; and healthy trees bear prime fruit."

"I found out about dynamite for farm use about four years ago. Sent to the Hercules Powder Co. for their free book 'Progressive Cultivation.' It tells you all about the uses of dynamite on the farm and in the orchard. The book has put money in the bank for me and I wouldn't be without it."

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Gentlemen: — Please send me a copy of "Progressive Cultivation." I am interested in dynamite for _____

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for Horses, Milch Cows, Chickens, Young Pigs and Hogs. Cheapest feed in the market today. If your dealer doesn't carry it, address
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Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.
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Eureka goes farthest and costs least in blasting stumps in dry ground. Giant Stumping Powder saves work and money in blasting in wet soils.

Both of these Giant Farm Powders are made especially to meet Western farm and orchard conditions, by a Pacific Coast company, with 50 years' experience — the company that *originated* all "giant powders." Your dealer can supply you; if he does not, write us and we will see that you get the genuine, which has the Giant brand on every box.

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Our valuable illustrated book, "Better Stump Removing," shows you how to do it. Mark and mail the coupon—or send a post card—and we will give you this book and any of the four others that you care to have. Write *now*—before you lay this aside.

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Send me your illustrated books on the subjects which I have marked X.
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Name _____
Address _____
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40 CENTS PER POUND
LIVE WEIGHT

Wanted: 50,000 Head of Fancy Live and Dressed Turkeys

W. C. Price & Co. Phone Kearney 1599. 244-246 Clay St., San Francisco.

We have just sold LIVE TURKEYS for several of our shippers at the highest price Turkeys ever sold for in the State of California, namely 40 cents per pound. If you have any large, fat, young or old TURKEYS, we would advise you to dress them nicely and ship them to us by express, or express them alive to us IMMEDIATELY. We shall require the above number of TURKEYS to supply our trade with between now and Thanksgiving and Christmas, so commence now, and get your TURKEYS and CHICKENS in the best condition possible, and ship them to the old reliable firm

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HONEY, GRAIN, BROOM CORN, GREEN DRIED FRUIT, AND GENERAL PRODUCE COMMISSION MERCHANTS

Established over forty years in San Francisco.

CONSIGNMENTS AND CORRESPONDENCE SOLICITED. Highest market prices and immediate cash returns guaranteed. Produce handled on consignment or bought outright for spot cash. Send us samples of any produce you have for sale, stating quantity and price. Any parties making us shipments of Dressed or Live TURKEYS or Wool are at liberty to draw on us as an advance upon their shipments 2½c per pound and we will remit the balance of their money immediately after receiving your shipment.

We make a specialty of handling wool on consignment. Would advise you to ship us all you have on hand immediately.

When answering advertisements, always mention Orchard and Farm.

FISH Salmon in brine, 100 lbs., $14.00. Shipping weight, 175 pounds. Smoked Salmon, 20 lbs., $4.00. Dried codfish, 10 lbs., $1.75. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Single Tax Debate — Kern's Argument

(Continued from Page 27)

for many years, it would not begin to return to the State the amount of tax money now paid by the owners annually for the millions of barrels of oil contained in tanks on top of the land. This tax is justly paid on "improvements."

Like State, Like Nation

They tell you that they are centering all of their activities upon California this year, hoping to have Single Tax adopted here, and thereafter throughout the entire United States. With this thought before us we can consider the matter from the standpoint of our single State. The help that the United States can give in the present war is made up of the help the national Government receives from every State in the Union of which we are one unit and therefore we should remember that just as our help and share in this war will be diminished if the Single Tax amendment is carried in California, so would the help of the entire nation be diminished if the Single Tax idea were carried in all of the States. In every real and practical way their "patriotic" arguments, when truthfully considered, work in the opposite direction. Our national Government is not supported by any tax on land, but by taxes on imports and exports; by corporation taxes and franchises, and by many other taxes, including the great inheritance tax, which has been revised so many times in the last few years. It is this inheritance tax which absolutely protects the people of the United States from the unjustness of vast accumulations of wealth remaining perpetually in the hands of one family. We cannot, over night, take these fortunes away, but with the enormously increased tax rate in proportion to the amount of property willed, we now have absolute assurance that such fortunes will not remain in perpetual existence. Under the Single Tax plan all of these beneficial features will be wiped out.

How very simple would be a proposed plan to untax all land and tax only improvements! Think of the saving in materials and labor which could be made. If anything would increase future production it would be the elimination of the tax on land, rather than the doubling of it. In theory it would work out just as well as the Single Tax on land, but it would be equally unjust and unfair. In Russia, the newspaper dispatches tell us, the people are distributing wealth by a method even more swift and that is by simply dividing up a certain mill or industry among the laborers who formerly worked there. Wealth, land or a business acquired in this manner, does not make for good citizens, nor does it increase the moral aspect of citizenship.

Costly to Land Owners

This debate, invited by the editor of Orchard and Farm is centered around the proposed Single Tax amendment, known as No. 19 on the ballot, which is to be voted upon on the 5th of this month. In my articles I have tried to show clearly and fairly where, should this amendment carry, it would not bring about any good but would do almost irreparable harm. When we consider a man living in a large city, we promptly connect him with large apartment houses, office buildings, or big factories and industries; when we think of a farmer we connect him with land. Amendment No. 19 would do just exactly what its clear language says viz. remove all taxes in every shape, manner and form, excepting a tax on land. The man who has given no thought whatever to this amendment (No. 19) can do but one thing in all fairness and good citizenship, and that is to vote NO and leave our present system of taxation as it is. To those of you who have read these articles on Single Tax, there can be but one answer to the question on which we have debated: "Would Single Tax aid or injure the land owner?" It would decidedly INJURE him!

(THE END)

Single Tax Debate—North's Argument

(Continued from Page 5)

million idle acres, nearly half of it good for farming and the rest fit to build homes on, yet no poor man can get a 50-foot lot, or an acre for a garden, without mortgaging himself to a landlord or a monopolist.

Monopolistic Control

Tax Commissioner Seavey reports that "three hundred and ten landed proprietors own over four million acres suited to intensive cultivation and capable of supporting a dense population."

Three of the State's largest land owners control more acres on this coast than there are in the German empire! One big concern has had as many men on horseback (guarding their fourteen million acres from hunters, squatters and tramps) as there were in the United States cavalry before the present war.

Smacks of Prussianism

The Immigration Commission says: "California's private land empires stand invulnerable against the present tax system." On just such private land empires is based the Prussian junker caste that has led all Germany to the slaughter. The foundation of autocracy is land monopoly, the ownership of the unused natural opportunities and resources by a few landlords.

Shall we nourish at home the conditions of Junkerism that our armies in France are destroying? Shall we tax everything else except these slacker acres? Shall we eat less and less, and pay more and more for food, to keep these 20,000,000 acres closed to production? We did not enter this war to enrich a few land owners, yet every American victory over Prussianism increases the rent and selling value of these idle acres makes their owners richer, and increases the rental or purchase price of a farm or a lot for a cottage.

And these acres pay no war tax! "Put your money in idle acres and escape the war tax," is the motto of every land monopolist and speculator, and they are doing it. To this condition—to the "Curse of California"—what will be the answer of the California voters on election day, Nov. 5th? Will they vote to continue the system of land monopoly under which the increase, in value and produce, must go to that "very small proportion of our population that owns land," or will they put a cross (X) after "Yes" on Amendment 19 and thus, by taxing these slacker acres, end the day in California when anyone can hold more land than he makes good use of?

Give Everyone a Chance!

Everyone who cares to should own land, and easily could but for its monopoly. City wage workers want home sites. Was there ever a normal mother who preferred a tenement apartment, or a flat to an open yard for her growing children? People wouldn't leave the city and go out

(Continued on Page 31)

New Ideas in Pear Growing

(Continued from Page 4)

gether with a fine mat of vetch tops to make another cover crop.

Pigs in the Rotation

As an aside to this story and also to the practice described it may be well to state that Mr. Caldwell secured four Duroc pigs in response to the "keep a pig" movement. He put these porkers into a movable panel pen on the vetch and moved them about every day to new feed. They fattened rapidly, and in their wake left value received in the form of fertilizer.

The original plan in the cover crop idea was to plow it under in the spring so as to have clean culture every other summer. But whether or not this scheme shall be followed will depend on the weather during the winter. At any rate Caldwell is convinced that he has secured a penetration of roots, a revenue in hay and a quantity of green manure which will add many times more in humus and bacteria to the soil than the usual practice would furnish. The growth of his trees testifies as to what his methods have done for them.

The Caldwell Pear Orchard

Mr. and Mrs. Caldwell are standing near one of their remarkable five-year-old trees. This photograph illustrates the unusual method of pruning, and gives an idea of the density of the cover crop.

His Pruning Methods

And that brings us to another point. Mr. Caldwell is something of a radical on the subject of pruning. One of his neighbors has not been on speaking terms with him for several years because of agruments they had earlier in the game over the proper way to prune pear trees. This man is becoming more sociable since the last crop of fruit was harvested. The pessimists fear now, however, that the trees will not be long-lived; only time of course, can solve this question

To describe the Caldwell theory of pruning to the neaphyte would require a bulletin, although the man who uses it explains what he thinks is obvious in a very few words. Instead of pruning the trees heavily each year he began tying the limbs down as soon as the framework was formed. Long canes were brought down until they were within reach and the shears used only to give them proper direction and to thin out crossed branches and those manifestly out of place. Much summer work has also helped to save waste of vegetative energy and to promote rapid development.

When bent down in this manner the limbs undoubtedly do develop an unusual number of fruit buds. They also throw out canes again at the angles and these are in turn bent down to form a second "deck." The whole is within easy reach of the pickers and the trees have an enormous bearing surface for their age, a fact which is attested by the yield of fruit.

What the Count Showed

An official count was made this year on a block of these five-year-old trees which comprised one end of the orchard. There were 374 trees in the block, and when the county agent completed the record a few days ago he found that they had produced a total of 940 boxes of fruit. Of these 900 boxes were Number one pears and only 40 were of Number two grade. An individual record was made of some of the best trees. In addition to the one mentioned at the head of this article another gave 635 fruits which weighed 228 pounds; and a third yielded 740 fruits which weighed 246 pounds, or four pounds less than five boxes. If anyone has a record which compares with this, Mr. Caldwell says he would be willing to make a long journey in order to see how it was accomplished.

Single Tax Debate—North's Argument

(Continued from Page 30)

and settle on these 20,000,000 idle acres if they had all the chance in the world,' say the Anti-Single Tax speculators. Then what are you afraid of? Why do you want to hold on to these acres? What good are they to you if nobody else wants them? You don't use them.

Why the Camouflage?

The truth is you are holding them because you know that others do need them, though not yet so badly as to bring many of them to your terms. Apply the Single Tax principle and the value wants them. Make these idle lots and acres of equal value pay as much tax as those in use, and then you will want them!

You wouldn't hold them a minute and pay even the nominal tax you do pay if you didn't expect to rent them or sell them on installments to poor people whose need for them will soon be so keen that they will be driven to work these acres on your terms. If that is not true, why do you fear Single Tax—a tax on land value?

If nobody wants them to farm, or to build a home or workshop or factory upon, that will prove they have little value and the tax will be very light. The Single Tax is on value; no value, no tax; little value, little tax; much value, much tax

Where are the great land values of California? In the cities they are under the big office buildings and

(Continued from Page 33)

"See how well they're made." Notice how carefully they are knitted and finished to make the soles and toes smooth, seamless and even. And the wide, elastic tops. Every woman who has had experience in buying hosiery can tell at a glance that there is extra comfort and longer wear in

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FOR MEN, WOMEN AND CHILDREN
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Every pair is strongly reinforced at points of hardest wear. Legs are full length, sizes correctly marked, colors will not fade.

Now that colder weather is approaching you may want

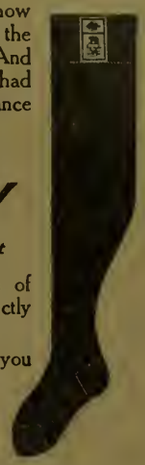
Durable-DURHAM Fleecy-lined Hosiery

It is truly full of warmth and full of wear. Every pair has thick, warm, soft fleecing and splendid wearing quality.

Ask your dealer for Durable-DURHAM Hosiery and look for the trade-mark ticket attached to each pair.

A free catalog of all styles retailing at 25, 35, 40 and 50 cents, including fleecy-lined hosiery, will be sent if you will write to our Sales Department, 88 Leonard St., New York.

DURHAM HOSIERY MILLS, Durham, N. C.



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A fine, wide elastic outsize stocking with extra wide elastic top. Medium weight. Made from soft-combed lisle-finish yarn. Strongly double reinforced heels and toes. Balbriggan, black and white.
Price 40c pair

ALPINE
A warm and comfortable fleece-lined stocking, with extra wide and elastic flare top. Full of warmth and full of wear. Double reinforced heels and toes. Feet and toes are smooth, seamless and even. Black.
Price 35c pair

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A VALUABLE BOOK OF INSTRUCTION TO THE BEGINNER AS WELL AS THE EXPERIENCED HORTICULTURIST.

Making a right start—preparation of the soil—time to plant—selecting proper varieties—irrigation—pruning and shaping, are all treated at length in this valuable book, which is sent Free on request.

Fancher Creek Nurseries
701 Holland Building
Fresno, Calif.

The Home Flower Garden

By Mrs. E. E. Paquette
1118 Polli Street, Ventura, Cal.

How, When and Why

Timely Suggestions for November

WHEN planting bulbs we should not overlook the smaller ones, as there is a wealth of beauty in them. Consider, for instance, the "Baby Glads." They come in the daintiest of pinks and blushes and are the most graceful of all flowers. They are very satisfactory for cut flowers and the bulbs multiply so fast. If you will get a few this year and plant them, you will have three times as many next year. And after that if they are well cared for, you will have enough to divide! I think there is no greater pleasure than giving some one a "starting" of some bulbs that one knows will prove a pleasure.

Two Pretty Varieties

Anemones and ranunculuses are both good small bulbs. The blooms are somewhat alike, are daintily colored, and are fairy-like in their lightness. Plant them in rows along the border if possible, and when planting do not string them out into a long row, but set them as close as three inches in the row (two inches is even better). It is well to set two or three rows closely together. I make one big, wide furrow, putting the sand in the bottom, just as I do for the large bulbs —and then plant about three rows together in this furrow, according to the above plan. I plant them irregularly and make the rows crooked, so that the flowers will not look stiff or formal. After the bulbs are all placed on their bed of sand I sift the soil slowly over them, until they are covered about two inches deep.

If you have never used anemone or ranunculus bulbs you will not know how to plant them. Soak the bulbs two hours in slightly warm water, and then plant the ranunculus with the "claws" down. The anemone bulb is smooth on the bottom, while the top has a soft, "fuzzy" appearance. Be sure to put the smooth side down.

Freesias should have been planted and up by now, but if you have not planted them, by all means get some as soon as possible and set them out. They will hurry up of their own accord and bloom almost as soon as the ones that are now up. Ixias, Star of Bethlehem, spraxis and the small iris should also be planted now.

The Cutting Box

If you have any of the soft wooded or tender herbaceous plants from which you want to start cuttings, it is advisable to make a good sand box now and fill it, for nothing that ever did root in sand will refuse to strike roots at this season. There is something about these cool, damp days after our first rains that seems to make everything start root and commence growing. The other day I saw a head of cabbage that had been placed on some damp leaves on a vegetable rack in a grocery store, which, after it had been left in the same place for a few days, produced a mass of tiny roots at the bottom of the stalk where it had been cut!

Look over your garden (also your neighbor's garden) and see which species you wish to increase. Perhaps it will be begonias or snapdragons; or if you have an especially good color in the penstemons, take cuttings of the plant just as you would of your favorite begonia and you will be more apt to have the same color than you would if you saved the seed. (Plants grown from cuttings always come true to color, and those from seeds do not.)

Making the Box

For a good cutting container use a box about eight inches deep. See that it is well nailed together so that it will not fall apart after being filled. Make several good holes in the bottom of the box. Place pieces of broken pots over the holes and then put some moss over the broken pottery so that the sand will not sift down through the holes. Get good clean coarse sand. If it is not clean put it in a tub and let water run in slowly, allowing it to flow gently over the edge of the vessel. This will wash the dirt out of the sand, and if you are very careful to let the water flow slowly, will not result in loss of the sand. After the sand is washed clean, fill your box to within two inches of the top. Level the sand in the box, wet it and smooth it down. Make a slit in the sand with an old butcher knife or some strong flat tool and put the cutting in the slit made by the knife. Never, never force a cutting down into wet sand so that the end of the delicate slip is bruised, as this is almost sure to cause decay.

Cleaning Up Time

"What shall I do with my old Shastas, and all the perrenials that are through blossoming?" asks one of our readers. This is the time of year to have a general "house-cleaning" in the garden. Cut off the old dead stalks, and take up all asters that have finished blooming; save the seeds if you wish. If not, burn the old stalks entirely.

Leaves are a natural mulch, but here in California there are so many little pests to bother us that we have to be careful to leave them no hiding places if we can help it. You see, the "pests" know that this is a good climate, and a good State in which to live, and they have written "back east" for all their relations who seem to take advantage of the invitation to spend the winter here. Therefore we have to use every precaution to keep them from taking possession of our gardens.

Cut off all old bloom stalks; rake up the dead leaves and burn them. If the dahlias are through blooming and the bulbs are well ripened take them up and store them in a dry cool place. It is better to "play safe" by leaving plenty of soil on the bulbs; it is a wise precaution also to leave the tops on for at least a foot above the bulbs.

After you have taken cuttings from your penstemons, cut them back to within six or eight inches of the ground and they will come up good and strong next year.

Give the violet bed a good, heavy mulching of manure and if the rains do not come just right, water them well; you will be well repaid.

Nearly all of the hardy perennial plants do well if divided and planted now for they will have a good long time to get settled and to make root growth, and will be ready to begin blossoming next spring.

Watch your rose bed; cutting away any old, blind wood that has been overlooked, and if you have not already done so, give the bushes a good heavy mulch of manure. In clipping off any dead wood be careful of the new shoots, as they mean roses in the near future.

It is well to begin planning now where you are going to put a few more roses, and to decide what variety you will use. Then you can get the bed ready for planting.

Pretty Costumes

Selected by Isabel Sinclair

These costumes are all carefully chosen with a view to their adaptability to the needs of the home dressmaker. None is elaborate or complex and all can easily be made from the patterns provided by this department. To get any of the patterns send ten cents in silver or stamps to Pattern Department, Orchard and Farm, Examiner Building, Los Angeles

2613—Boy's Suit

Here is a popular suit for your small boy. Cut in 4 sizes: 2, 3, 4 and 5 years. Size 4 requires 3⅝ yards of 27-inch material. Price, 10 cents.

2640-2616—A Pretty Costume

Waist 2640 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. The skirt 2616 is cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches waist measure. It will require about 6¼ yards of 40-inch material for the entire dress for a 38-inch size. Width at lower edge of skirt is about 2 yards, with plaits drawn out. Two separate patterns, 10 cents for each pattern.

2369—A Popular Style

Dress for misses and small women. Cut in 3 sizes: 16, 18 and 20 years. Size 16 requires 4½ yards of 36-inch material. The skirt measures about 2 yards at the lower edge. Price, 10 cents.

2631—Lady's Dress

In Tunic Style. Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 5 yards of 44-inch material. Width of skirt at lower edge is about 2 yards. Price, 10 cents.

2637—Girl's Dress

Cut in 4 sizes: 4, 6, 8 and 10 years. Size 8 will require 4⅞ yards of 27-inch material. Price, 10 cents.

2408—Lady's House Dress

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 5¾ yards of 44-inch material. The skirt measures about 2½ yards at the foot. Price, 10 cents.

2633—A Smart Junior Suit

Cut in 3 sizes: 12, 14 and 16 years. Size 14 requires 5 yards of 36-inch material. Price, 10 cents.

2639—Girl's Dress

Cut in 4 sizes: 8, 10, 12 and 14 years. Size 12 requires 3⅝ yards of 36-inch material. Price, 10 cents.

2623—Lady's Apron

A cool, practical and comfortable apron. Cut in 4 sizes: Small, 32-34; Medium 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. Size Medium requires 4 yards of 36-inch material. Price, 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date fall and winter, 1918-1919, catalogue, containing 550 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking, also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker.

Use Coupon in Ordering Pattern

Herewith find..... cents for which send me the following patterns:

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Pattern No..... Size .....

Pattern No..... Size .....

Be sure to give number and size. Send order for patterns to ORCHARD AND FARM "Examiner" Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below.

Single Tax Debate

North's Argument

(Continued from Page 31)

banks, not under the workingman's home cottage; in the country they are on the vast idle estates, the "private land empires," not on the farm land that is in use.

Effect of Single Tax

Single Tax (Amendment 19) will lower store rent in the cities as well as make it easy for anyone to acquire a building lot. In the country, it will cut up the vast idle estates and invite millions of settlers to take up land at prices that can be paid out of crops grown on it or out of the saving in land rent now paid to private landlords.

This it will do in a natural way, without the least confusion to anything but speculative values. Land value is now separately assessed and the complete official and technical machinery therefor is already in successful operation. It will merely abolish the "absurd, costly and unsatisfactory" taxation complexities complained of by every home owner and business man, and criticised by the State Tax Commission.

A Contradiction Exposed

It is claimed that Single Tax will untax money, credits, bonds and accumulated wealth. Then why do the holders of these so bitterly oppose it, in spite of its great necessity as a war measure?

All wealth (money, bonds, securities) must first come out of the land, and the reason that these are now in the hands of about three per cent of the population is that they own ninety per cent of the land value of California. The Single Tax is based upon land value and will fall upon those that hold that value; on the three per cent.

It is said that public service corporations now pay the State tax which, under Single Tax, will fall back on the people. The truth is that the corporations merely collect the tax (plus a good commission) from the people. Single Tax will stop this indirect tax distribution and put all taxes on a fair open basis. Those will pay who take, in exact proportion to the value of their holdings, while farmers, home owners, labor and business will be untaxed on everything but the very small land value held by them.

Single Tax is the basic step in the social reconstruction which began when the railroads passed from private profit to public service. It will put land holding on the same high plane. It is only speculation and monopoly "interests" that fear and oppose the justice and harmony of Single Tax.

THE END.

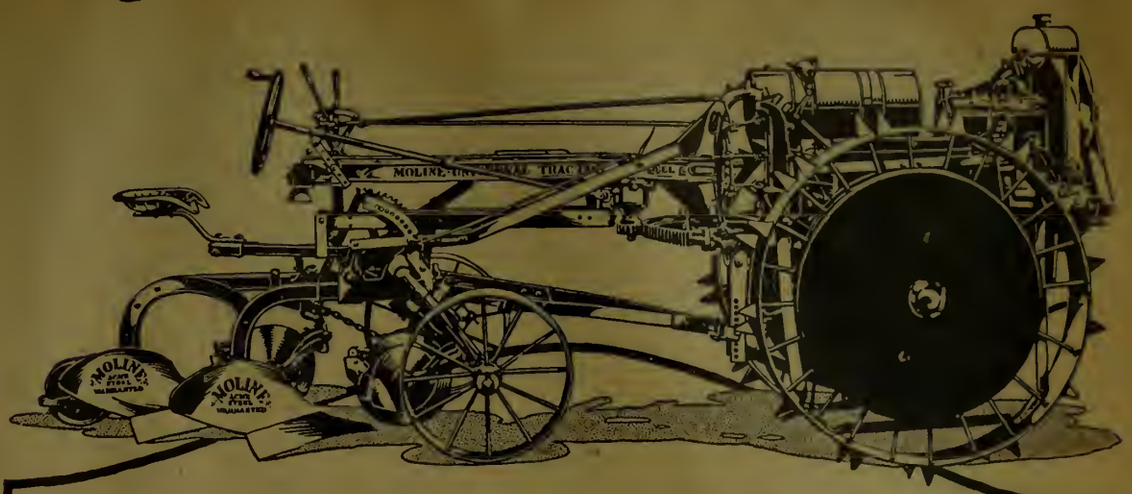
Velvet Beans

A recent bulletin issued by the U. S. Department of Agriculture discusses the high feeding value of velvet beans, stating that, when fed in conjunction with corn silage, they have proved to be on a par with cottonseed meal.

That they have not proved successful in California, however, is pointed out by Professor F. W. Woll of the State University, who says that while they are of great value to the farmers in Florida, Georgia and Alabama, the experiments conducted at the University Farm and elsewhere in this State have not given much hope as to their utilization here.

There may be some sections of the State where they can be successfully grown, Professor Woll admits, and Orchard and Farm would be glad to hear from any readers who have had experience with these beans.

Buy Your Moline Tractor Now



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You will help relieve spring congestion of shipping by buying now.

You will have plenty of time to become familiar with its construction and operation before the spring rush and will be able to work your tractor in on belt work and other light jobs.

It is the only tractor which does all farm work including cultivating.

One man operates both tractor and implement from the seat of the implement where you must sit in order to do the best work.

Tractor and implement form one unit—backs as easily as it goes forward—turns in a 16-ft. circle.

It has plenty of power for your heaviest work, yet light in weight to operate economically on light jobs. All the weight on two big drive wheels—no dead weight—no extra expense.

Substantially constructed for many years of service.

Electric lights for night work and self starter for non-robust labor.

You can practically double your efficiency—you can produce more food with less help. You will need it, order now.

Write today for full information and name of your nearest Moline Dealer. Address Dept. 48.

Moline Plow Co., Moline, Illinois

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Buy War Savings Stamps, Keep Your Bonds and Mention Orchard and Farm to Advertisers.

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Standard Well-Boring Outfit

Hand operated. Bores wells 8 to 16 in. dia. 40 to 100 ft. deep. One man bored 40-ft. well in 10 hours and put in casing.

BORES 100 FT. WELLS BY HAND

One day's work pays for it

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Delivery to You by Prepaid Freight.
Delay Buying Until You Have Compared My Samples With Seed Others Offer.

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RATES

Our rate for classified advertisements is 3 cents per word for each insertion. Advertisements must reach us before the 21st of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

REAL ESTATE

BEAN, WALNUT AND POULTRY RANCH of 37 acres, 7 acres bottom, 6 being under irrigation and set out to walnuts, 5 to 14 years old. 1 acre set out to apricots, 3 years old; plenty water piped all over place, granary, good 7-room house, two barns, equipped to keep from 600 to 1000 hens, plenty of firewood. This year the place produced about $800 of beans, $[illegible] of walnuts, and poultry net $9[illegible]. Price, $[illegible]00 no trade. C. N. Houlton, owner, Arroyo Grande, Calif.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents, for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Tex.

ORANGE AND LEMON GROVE for sale—20 acres 4-year-old Eureka lemons and 10 acres 6-year-old oranges and lemons. Lots of water. Nothing finer in California. Will be a big crop this season. Must sell quick to settle up an estate. No agents. No exchanges. Address C. W. Mount, 522 Higgins Bldg., Los Angeles.

FOR SALE—110 acres land, $80.00 per acre, near Goshen. All level, graded for irrigation; fair dwelling and barn, interest in pumping plant. Suitable for alfalfa, fruit and raisins. A bargain. W. M. Pence, San Miguel, Cal.

FOR SALE—A fine ranch, 397 acres, on the State Highway to Yosemite and the Hetch Hetchy Railway. For more important information, address A. J. Smith, Groveland, Tuolumne County, California.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

WANTED—To hear from owner of good farm for sale, state cash price, full description. D. F. Bush, Minneapolis, Minn.

COUNTRY PROPERTY FOR SALE

BARGAIN for quick deal. For sale or rent, [illegible]-acre farm home, all level; modern bungalow, new barn, irrigating plant, bearing orchard, farming outfit. Price, $[illegible], half cash. Or will rent to party buying outfit, tractor, plows, horses, cows, hay, etc., for $[illegible]. Write owner, J. W. Britain, Llanada, Cal.

FOR SALE—119 acres well-improved farm, near Visalia and school; 40 alfalfa, balance pasture and farm land; plenty of water; $[illegible] or more will handle deal; terms right; ill health reason for selling. Wm. D. Green, Visalia, Calif.

FOR SALE AT A BARGAIN—Four acres between First and Second streets, Paso Robles, Calif.; $4[illegible] worth of improvements. Price for November to get money quick, $1[illegible]. Carl Storia and Miss Maggie Storia.

SAN JOAQUIN VALLEY LANDS

FOR SALE—[illegible] acres improved farm, near Turlock, Cal. Good arrangement for chickens, alfalfa. Thomson, Leedles and Home Orchard. A. C. M. Christofferson, R. F. D. Turlock, Cal.

FLORIDA FARMS FOR SALE

$500 DOWN SECURES FLORIDA FRUIT FARM

Wired fenced grove, 186 orange, grapefruit, persimmon, lemon, guava, banana, peach and cherry trees; grapes. Incubator, chicken house and cow shed. To settle affairs now low price $1200, $500 down for this 5-acre farm. If taken soon he includes farm and garden tools, stove, tables, chairs, engine to pump water to tank, etc., etc. Write today for Strout's Big Catalogue with picture neat cottage and big porch, page 66, and describing many other equipped farms, groves and winter homes throughout Florida. Copy mailed free. E. A. STROUT FARM AGENCY, Dept. 781, Heard Bank Bldg., Jacksonville, Florida.

FARMS WANTED

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

WANTED—To hear from owner of good farm for sale. State cash price, full description. D. F. Bush, Minneapolis, Minn.

REAL ESTATE—Sale or Exchange

I HAVE 10 acres of land in Tulare County, Terra Bella district, clear title. I would like to trade on some larger acreage, the ten as first payment. Alfalfa and hog land preferable. J. E. Winters, Box 81, Taft, Cal.

REAL ESTATE FOR EXCHANGE

TO EXCHANGE AT A BARGAIN—10 acres good land fenced; free so[illegible] near Galt, Sacramento County, Calif. $[illegible] loan would exchange for smaller place, clear, or small loan. Also have lot on High street, Melrose (Oakland) price $[illegible]. Address owner, Route A, Box 2[illegible]A, Campo, Calif.

WE EXCHANGE Real Estate—Johnson & Temple, San Jose, Cal.

I HAVE 10 ACRES OF LAND in Tulare County, Terra Bella district, clear title. I would like to trade on some larger acreage, the ten as first payment, alfalfa and hog land preferable. J. E. Winters, Box 81, Taft, Cal.

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ANY AMOUNT ON COUNTRY PROPERTY. Bank rates. Write for particulars. We specialize on large country loans.
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POULTRY

HOW ABOUT IT? We are not strongly in favor of baby chicks hatched very late in the fall. Breeding has been passing this moult, fertility and vitality both impaired. BUT we do believe in January and February chicks. Conditions are far better results—satisfaction. We are already booking orders for early delivery. Supply will not equal demand then, so get busy and plan ahead for yours. A small deposit will book order. Our circular (free) will give you information and prices, tell you about our stock and plant and why 1919 chicks will pay big. Our breeds: R. I. Reds, White and Barred Rocks, Black Minorcas, White, Brown and Buff Leghorns. Baby chicks by express or parcel post in lots of 15 to thousands. (Our capacity is 12,000 weekly.) We insure safe delivery and can quote you price delivered on request. Suppose you write us. THE MISSION HATCHERY, Box 7, Campbell, Cal.

FALL CHICKS FOR SALE—400,000 S. C. White Leghorn chicks from free range Hoganized stock only, for delivery from July to December, at very reasonable prices. Fall chicks are most profitable—broilers in ten weeks, pullets lay at five months. We guarantee safe delivery of all chicks to destination. Shipped safely anywhere west of the Rockies. No money in advance, pay on delivery. Special prices on 500 and 1000 lots. Finest hatchery in the world. Established over twenty years. Further information write Must Hatch Incubator Company, 423 Seventh street, Petaluma, Cal.

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FOR SALE—Take advantage of this special offer of a year's subscription to the California Poultry Journal, the leader in California, or a one year's subscription to the Northwest Poultry Journal, the leader in the Northwest, including one year's (new or renewal) subscription to Orchard and Farm for only seventy-five cents, or both poultry journals for one year and Orchard and Farm one year for one dollar. Mail your order today to Orchard and Farm, Los Angeles, Cal.

WELL, WELL—Here the White Plumage Poultry Farm and Hatchery is coming again, ready for another season. Our S. C. White Leghorn breeding stock is better than at any time during our 1[illegible] years of breeding. Therefore we can produce better and stronger baby chicks. Why not do your bit and help feed the world. It is none too early to place your order with us today. We guarantee safe delivery. Price, $15 per 100, $70 per 500 and $1[illegible] per 1000. H. A. Schlotthauer, Exeter, Calif. Route A, Box 14[illegible].

FEED HIGH, EGGS, MEAT HIGHER. Our 2[illegible]-egg Leghorn, Anconas, Reds, Rocks, Minorcas, Wyandottes, Orpingtons, ducks are more profitable now than ever; clearing $5 yearly. Some best hens, government trap-nested, 250-[illegible]3 eggs yearly. Hundreds breeders, laying younger pullets, thousands chicks weekly; reasonable. CHICKS SCARCE now booking for winter-spring delivery. W. Beeson, Pasadena, Calif.

FINEST HATCHERY IN THE WORLD—Baby chicks, Rhode Island Reds and White Leghorns, settings, 100, 1000 hatched right in our $60,000 brick and concrete hatchery from our quality heavy layers; reasonable prices; stock hatching eggs. Pebbleside Poultry Farm, Sunnyvale, Cal.

FOR SALE—Early hatched cockerels. White Leghorns. Carefully bred for 15 years for vigor, heavy laying and standard requirements. Trapnested and Hoganized. McFarlane strain. A. Worel, R. D. 3, Napa, Cal.

BARRED PLYMOUTH ROCKS—Champion prize winners and wonderful layers. Stock for sale—nothing better in poultry than Vodden's Rocks. Catalog free. Vodden's Rockery, Los Gatos, Cal.

WANTED—MRS JORDAN and 1000 other women poultry keepers to write P. J. Kelly, 2[illegible]7 Kelly Bldg., Minneapolis, Minn., for his new text-book on how to make lazy hens lay. The book will be mailed FREE.

CHIX—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas; Buff, White and Brown Leghorns; breeding cockerels. Enoch Crews, Seabright, Cal.

SANTA CRUZ HATCHERY — Established 1910. Chicks hatched from select stock only; satisfied customers the key to success. Eric Rosenquist, Santa Cruz, Cal.

PURE-BRED Buff Orpington Cockerels ($3.00). Eggs for hatching next season. Mrs. J. R. Talbot, Box 62, Graton, Sonoma Co., Cal.

I HAVE purchased cocks from 293 eggs, English White Leghorns, Barron strain; am hatching A-1 [illegible] for only $15 per 1[illegible]. D. P. Gol[illegible], Sanger, Cal.

"EASTMAN'S BRED-TO-LAY" Hoganized tr[illegible] Barred Rocks [illegible] cockerels, eggs. A[illegible] Poultry Farm, F[illegible], Cal.

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SEVERAL VARIETIES BRONZE TURKEYS fine specimens from a long line of Madison Square first winners, females, $7; males, $11, no old stock. Old birds, other fine strain; hens, $8, toms, $15 to $20. Three first quality White Holland toms, 2 to 3 years old each. A prize winner California State Fair, $[illegible]. Bourbon Red males, 2 years, $1[illegible], females, $8. White guineas, adults, male or female, $3 each. White Muscovy quackless ducks, $[illegible] each, drakes, $3.50. Mrs. B. Hocking, Guasti, Calif. Winner of many firsts in all lines.

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H. P. BOTH, R. F. D. No. 1, Box 238, Oakland, Cal. Breeder of water fowl.

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TOULOUSE GEESE, $3 each. Hewitt and Hewitt, Dixon, Cal.

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WANTED—1000 poultry men to try the new Perfection automatic poultry fountain; none better; free circular. John Imschweiler, Inglewood, Cal.

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RAISE STOCK FOR US—We buy all you raise. We pay you the highest market prices and furnish perfect breeding stock. GO INTO BUSINESS FOR YOURSELF. Our booklet and details mailed for 10 cents.
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FINE UTILITY New Zealand Red Rabbits, 4 months old, $3.00 ea., $5.50 pr., $8.00 trio. 5 months old, $3.50 ea., $6.50 pr., $9.50 trio. 6 months old, $4.00 ea., $7.50 pr., $11.00 trio. Good, strong healthy stock. Subject to previous sale. Armstrongs Rabbit Yards, Petaluma, Calif.

FOR SALE—RABBITS from registered and Blue Ribbon stock Flemish, New Zealand, Am. Checkered and Belgian; 175 does and 20 bucks. Come and pick your choice; prices right; 75 young does, 3½ to 4½ months at $1.50. N. Z.'s dark red, very fine. R. Daniels, Walnut Creek, Cal.

NEW ZEALAND REDS—Pedigreed, none finer. Richly colored, four red feet and creamy bellies. Also fine red utility stock, three, four and six months old. E. Kelly, 834 Main st., Petaluma, Cal.

NEW ZEALAND RED RABBITS—Improve your stock with does or bucks from my registered buck, prices right. Armstrongs Rabbit Yards, Petaluma, Cal.

MONEY IN RABBITS—Raise rabbits for us. Will pay $6 per pair. Send stamp for reply. H. E. Gibson Co., Arcadia, Cal.

FOR SALE—Rabbits, New Zealand and Flemish Giant. Paul Kruger, Watsonville, California.

FOR SALE—New Zealand rabbits, utility and pedigreed well-bred stock, at prices to reach all. Stephen E. [illegible], 53[illegible] North Hicks street, Los Angeles, Calif.

BARGAIN IN NEW ZEALAND RED RABBITS, fine stock, nearly four months old, will sell for $3 per pair (buck and doe) if taken AT ONCE. H. C. Gibson, R. F. D. No. 1, Menlo Park, Calif.

"RICHEY'S Western Rabbit and Cavy Book," price, 5[illegible]c. Will save you many dollars. Mrs. C. A. Richey, 618 North Benton way, Los Angeles. New Zealand Reds and English for sale.

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FOR SALE OR EXCHANGE—For land, large black registered jacks and jennetts; best bunch in California. A. L. Allen, Perris, Cal.

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I like my Kirstin. I have pulled old pine stumps as big as 20 inches. I have not hitched to anything but what has come. *Earl Rogers, Kelliher, Minn.*

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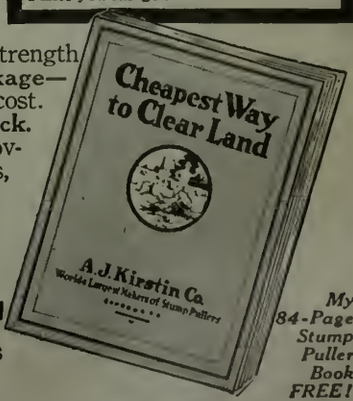

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December, 1918

Startling Apple Facts by Luther Burbank

10c Per Copy

ORCHARD and FARM

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M. O. Dept. **PHILADELPHIA SHOE CO., SAN FRANCISCO**

Red Cross Dairies in France

How the "Greatest Mother in the World" has entered the realm of agriculture in war-torn France, where there was not enough milk to go 'round, and why her work is more necessary than ever, now that there is once more Peace on Earth.

THE war has ended, but not the work of the Red Cross! That unexpected difficulties will be encountered in the drive for membership, December 16 to 24, is to be expected, for the cessation of hostilities will undoubtedly lead many persons to believe that there is no longer any necessity for the employment of large funds in carrying on the work of mercy.

True, the ending of the war has changed the entire aspect of the situation, but the Red Cross confronts problems even more difficult than those encountered while men were fighting and bleeding and dying. Tremendous projects, already commenced, must be carried to successful conclusion and new and important undertakings must be set in motion. And all these things require money—large sums of money.

For months the medical service must be continued. But in addition to that is the crying need for the merciful hand of "the greatest mother in the world" in the reconstruction of nations. Hope must be put back into the souls of war-weary peoples; the destitute must be fed and clothed; food must be rushed to starving refugees. In fact, without detracting in any way from its great war work, it may be said that the Red Cross really comes into its own with the cessation of hostilities! It is primarily an organization of mercy and hope, and where are these two influences more needed than in the wake of Mars?

Will You Help?

It is therefore the great privilege of every American to aid not only our own men in service, but the very cause of Humanity by contributing willingly during the Red Cross December drive. The drive will be for members; the dollar which purchases a membership certificate will buy more than any other dollar you can spend.

The Red Cross has extended its work along many unexpected lines, its policy having been to attack and solve, as necessary, the problems which presented themselves. This has even entailed the operation of farms, the purchase of tillage implements and the establishment of agricultural training schools.

The immediate need for more dairy farms in France is being met by the American Red Cross. The French government has agreed to loan 1000 cows for a model experimental dairy plant to be established by them at the largest American army hospital in France.

It is a well-known fact that the growth-stimulating properties contained in milk are essential in the adult diet, although not to the same extent as is the case with children. Army physicians have agreed that fresh milk is absolutely vital to the convalescent soldiers.

Assuring Milk Supply

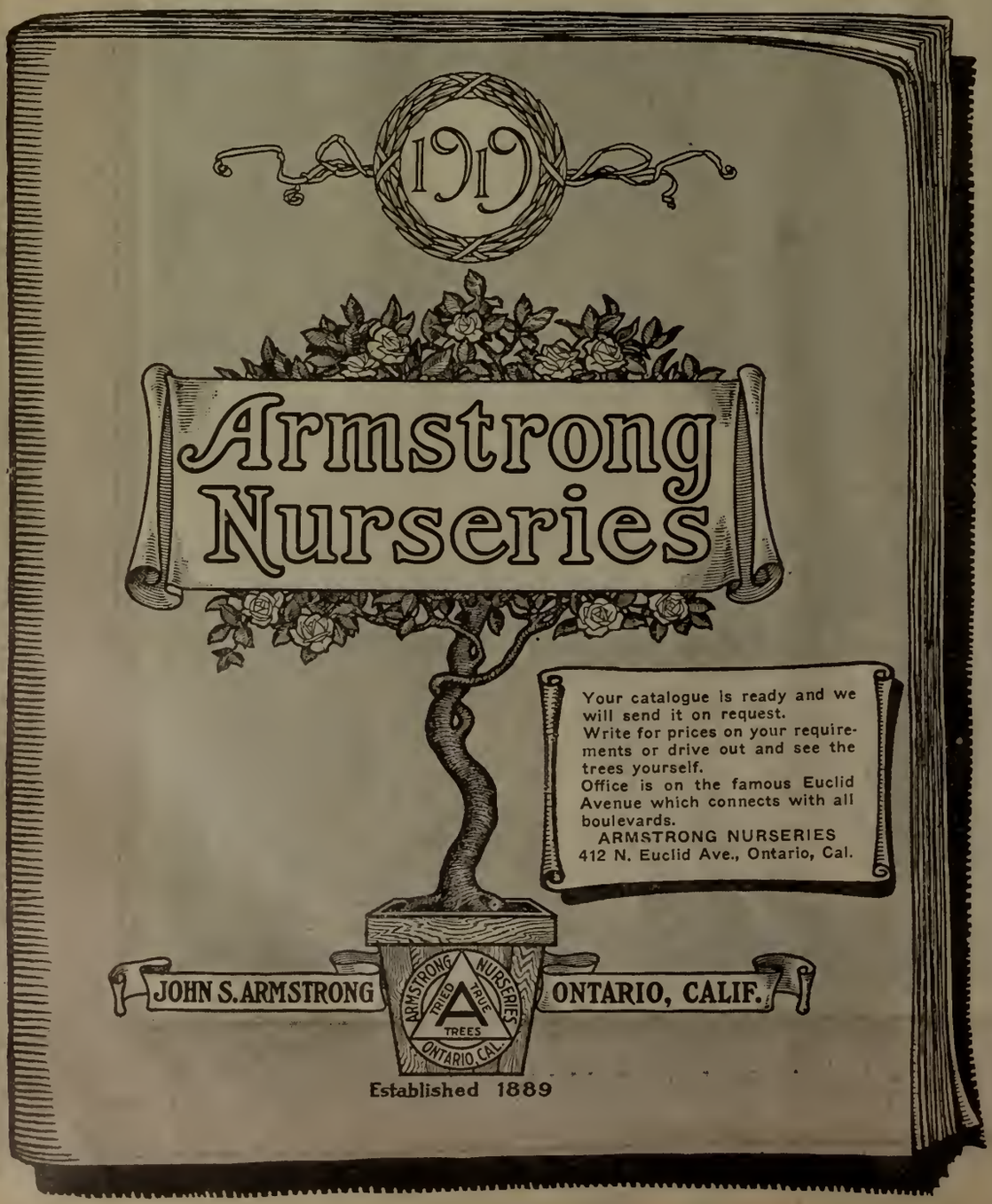
The milk needs of the children of the war-ridden countries has been one of the prime concerns of the Child Welfare Bureau of the American Red Cross. All the dispensaries conducted by them have tried to keep a sufficient supply on hand.

In France, both the price and sale of milk is regulated by law. In order that there might be a sufficient supply for the babies, there has been a regulation in Paris that no milk should be sold or served to the public after 9 o'clock a. m. This ruling, however, has not been applicable to the sale of condensed milk, which comes almost entirely from America.

Red Cross Dairy

This, however, does not take the place of fresh milk in the hospital dietary. It is because of this that $5000 has been set aside by the American Red Cross to experiment in the establishment of a dairy at one of the base hospitals in France. If this proves the success that is anticipated, the Red Cross stands ready to start similar plants at other base hospitals. These will each be under the general supervision of one of the leading American dairy specialists.

Dairy experts now in the foreign Red Cross service insist that this one dairy can be made to produce enough milk to supply hundreds of persons daily. The rest stations established in connection with base hospitals have always tried to keep on hand an unlimited supply of milk for the convalescent men. One American worker writes of a young soldier boy who drank four cups, one after the other, and then looked up smiling and said: "I wish my mother could see me now." Tears came to the eyes of the worker, whose own boy was perhaps in some distant rest station at that very minute.



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The Farmer's Part in the Reconstruction Period

By Charles A. Lyman

Secretary National Board of Farm Organizations

Washington, D. C.

RUSSIA is starving. Starvation begets anarchy and chaos. If such peoples as the Bulgarians, Rumanians, Czecho-Slovaks and Jugo-Slavs are to be saved from Lenines and Trotzkys they too must be fed. We have won democracy by the sword, but nothing will hold democracy except food.

Every farmer should bear it well in mind that the efforts which have been made in the last two years are nothing compared with the efforts that must now be made in the light of the demands of a hungry world.

Organized business is already preparing to send agents with catalogs of machinery and supplies into these countries. Organized business is efficient, but it is madness to think of capturing the commerce of the world without first providing food.

The policy to be pursued toward agriculture by the American people will determine whether democracy will really exist or whether the fruits of our dearly bought victory will be lost.

The business man should understand that the only way to save the world from the Bolsheviki is by feeding the world. Any other policy will make all our holy efforts turn to dust.

Farmers Must Act

Bills are already in Congress and others are certain to follow bearing on the methods under which this nation, unhampered by the restrictions of war, shall once more tread the commercial and industrial pathways of peace.

Unless the farm organizations of the country take a hand in the shaping of legislation bearing on the problems arising out of the war there is grave danger that measures will be enacted which may lead to permanent injury to agriculture. It is high time for farm organizations to get their affairs in order and be ready to act together in the making of wise and constructive plans.

Business (other than the business of food production) long before the days of the Hanseatic League was organized to take care of its own. At this moment wealth, prestige, the power to do or at good or evil are in the hands of men who have organized. These men will emerge from the war still better prepared and with sharpened appetite. Business will reach out in every direction for trade and profits.

What Is Coming

It will ask for legislation and special privilcges, and will get both if it can. On former occasions it has been successful. Unless agriculture develops simultaneously with business there will be no real progress in this Nation. There must be greater guarantees in agriculture than now exist.

Opportunity

In your lifetime and mine no such opportunity has come to the farmers of America as is now presented by the close of the war. If we neglect our duty in this matter we shall see the continued domination of our vital interests by men who neither rightly understand nor justly estimate the position and the services of the American farmer.

The task undertaken by the Agricultural Reconstruction Committee of this board is to place before not only the farmers but our entire people such a plan of reconstruction as will bring to agriculture the stability and permanency necessary to the welfare of farmer and city dweller alike.

The committee desires first of all that the questions given below should be immediately placed before and discussed by the farm organizations of this country.

The Great Questions

The questions proposed for discussion are:

1. Are farmers getting a fair share of the wealth they produce? If not, why?

2. Is the influence of the farmers in National, State and local affairs in reasonable proportion to their numbers and power and the value of the services they render to all the people? If not, why?

3. What changes are necessary to bring about permanent agriculture? (By permanent agriculture we mean an agriculture yielding returns financially and socially as satisfying as those of other industries and modes of life.)

It is urged that every farm organization throughout the country send before January first, to the HEADQUARTERS OF THE NATIONAL BOARD OF FARM ORGANIZATIONS, WOODWARD BLDG., WASHINGTON, D. C., copies of all resolutions adopted during November and December and also those measures which are defeated with explanation of the reason for their rejection or any statement it is desired to make. In order that this information may be tabulated and used to the best advantage in the interests of American agriculture, it is suggested that the farmers do not limit themselves to the above questions, but also make suggestions in conformity with the needs and conditions in their different localities. Quick action is necessary; do not wait until it is too late. United, we stand; divided, we fall.

A Christmas Message to Pacific Coast Farmers

From Herbert Hoover

Prepared by The United States Food Administration
Especially for Orchard and Farm

THE food needed to restore Europe to a full measure of strength and vigor does not exist in the world today. By exporting 20,000,000 tons of staple food we expect to maintain the Allies and the liberated nations overseas until next harvest. But to stay permanently the menace of famine which has already claimed more millions than the sword of war, American farmers must prepare still to "carry on." We must carry on an agricultural offensive the end of which is not in sight.

The question is sometimes asked, "If human lives can be conscripted for waging a war, in defense of nations threatened by military foe, why can not food also be conscripted, to protect large populations against famine, which is utterly without mercy?" This is a timely question and here is the answer: A civilian may be drafted as a soldier, and food already existing may be commandeered, but there is no successful compulsory means for harnessing the forces which liberate food now locked up in the soil or to be derived from future animal production.

More than that, even if such a means of securing food were physically possible, it is not a plan consistent with policies of the Food Administration toward the American producer. Rather, the administration has relied on willingness and ability of farmers to produce the kind and amount of products required. The millions of tons of food now needed to win the war against famine must therefore continue to come from the voluntary efforts of our well-informed farmers. Conservation, is of material help and must be regarded not as a damper on demand, but rather as the means of enabling America to fulfill her food pledges.

We must also secure an international view of agricultural problems, and realize that greater production calls for more care and skill in marketing than in the past. Transportation, terminal and shipping facilities limit the speed with which crops or animals, rushed to market, can be handled. There will consequently be need for a close study of domestic marketing conditions, as well as foreign developments. The United States is now a world power agriculturally, as well as an imposing military figure in the international councils.

Until the war against famine is won, emphasis may wisely rest on staple foods which comprise about 95 per cent of human sustenance. Among the staples needed are especially included, beef and pork products, all fats, manufactured dairy products, cereal grains and animal feeds. Meat products are likely to be in demand long after the supply of cereals has reached normal.

Such briefly, is the outlook as we approach another crop year. Humanity calls for the best efforts of all persons skilled in agriculture. Save for liberty alone, the greatest Christmas blessing which the United States can bestow on the war-ravished nations overseas, is tangible food now and the assurance of more to follow. This is a gift timely and fitting. While new democracies overseas are being born and liberated, those nations which have food to spare are learning the true meaning of peace and good will on earth, for it is in their province to interpret in a larger way, perhaps, than it has even been interpreted before the real Christmas spirit.

California Apples Lead in the World's Markets

Fruits of the new "Crimson" apple, a seedling of exquisite quality developed by Mr. Burbank from the Golden Russet.

by Luther Burbank
Written Especially for Orchard and Farm

THE common apple, the most staple fruit of the household in all temperate climates, has been cultivated from time immemorial. Charred remains of its fruits are found in the prehistoric lake dwellings of Switzerland. In the annals of mythology it has found a place, perhaps of greater significance than that enjoyed by any other fruit; the ancient writers endowed the apple with wonderful virtues, even with the power of confering immortality.

The several hundred varieties of apples of today have been developed mostly from two sources: Pyrus malus and Pyrus baccata. The former, the parent of most of the common apples, is a native of southwestern Asia and adjacent Europe; the latter a native of Siberia, from which it gets its name—Siberian crab. In our own country there are several native apples, of which the best, from the standpoint of the pomologist, are Pyrus ioensis of the prairie States and Pyrus coronaria of the Eastern States. The species of the prairie States resembles very much the European Pyrus malus, and is decidedly more promising than the Eastern species. It has produced a number of hybrids with the common apple, the Soulard crab being one of the best known.

Millions of Varieties

The apple has probably been raised from seed more often than other any fruit in cultivation, with the possible exception of the orange. The varieties thus produced, no doubt, amount to millions; by natural processes directed by human selection they have been developed, so that at present there are a thousand or more distinct named varieties in cultivation in this country alone.

Each geographical section has developed apples best adapted to it; although a few varieties seem to thrive almost everywhere. The Baldwin is not generally grown outside of New England, New York and Ohio; and in those localities it is the leading apple. Farther west in parts of New York, Pennsylanvia, Illinois and Indiana it does not thrive so well; in that region and farther south and west, the Ben Davis is much grown. The winter apples of New England and the northern States become summer apples when transferred to the south. This is much the case when they are transferred to California. Here the Baldwin is an early fall apple; the Rhode Island Greening ripens in September and the Nonesuch about the same time. Among the most popular standard apples in this section are the Newtown, the Spitzenburg, the Bellflower, Gravenstein and Wagener. Many of the southern apples, especially those from Missouri, Arkansas, Tennessee and Kentucky are standard apples here; but none of those from the far eastern or more southern States have ever become generally popular in California.

Local Favorites

The Gravenstein is now being planted more than any other variety in this section. It thrives unusually well here, but in most other parts of the State it is somewhat a failure. It is much more pleasant, and not so acid as when grown in the eastern States, and used either for eating or cooking, is the most popular apple on the San Francisco markets during the fall months. The tree is a regular bearer, more nearly immune from mildew and the apple-scab than the Newtown or the Bellflower. The Newtown is a fine cooking apple, and is highly esteemed by many; but, although the aroma and its cooking qualities are of the best, the tree is a very weak grower. The Spitzenberg or the Bellflower planted alongside of the Newtown will bear more apples in one year than it will in five. The Wagener is small in size and not of a very brilliant color; yet it is a delicious apple, and very popular for home use. The Spitzenberg is a heavy and regular bearer, and has many excellent qualities. But the Garden Royal, to my taste, is the finest of all the older apples, and I think it is usually considered the standard of all for quality. The Garden Royal is a small fall apple; it begins bearing when very young, and produces fruit regularly and abundantly.

California apples are shipped extensively to Europe and the southern countries, where they are highly appreciated. By actual test they have been found to keep far better than apples grown in the moist, Eastern climates. Their skins seem to be a little thicker and more impervious, which is probably due to our clear atmosphere and abundance of sunshine. California apples are usually milder, and sweeter, too, than those grown in the East; while the Baldwin, the Rhode Island Greening and the Gravenstein are really quite acid apples in New England here they are only mildly tart, the Rhode Island Greening becoming positively sweet when fully ripe.

New Varieties of Apples

The apple has so long been cultivated and so many varieties have been grown side by side that it is most thoroughly intercrossed; and, more than any other fruit with which I am acquainted, varies from the original. For instance, one may plant all Baldwin seeds, and the seedling apples produced therefrom are quite as likely to bear a perceptible resemblance to the Gravenstein or the Newtown as to the Baldwin. There are exceptions, of course, and as a rule seedlings from most of the apples, when grown in large quantities, show a general similarity in some particulars to the parent apple. The Gravenstein comes more nearly to reproducing itself than most apples; the Golden Russet, the Garden Royal and also the William's Favorite usually come comparatively true to seed. The Baldwin is one of the most variable of all apples from seed, but the Newtown, the Rhode Island Greening and nearly all known cultivated apples are also decidedly variable.

Since the apple has been under cultivation long and extensively, it is now an exceedingly difficult matter to produce a new variety that will exceed in all its qualities some highly prized apple already being grown However, with a definite aim in view productive trees may be evolved without the least trouble; and also trees that will resist mildew, or that will possess any other desirable property But when one undertakes to combine all the good qualities into one apple and place that apple upon a tree both strong and vigorous and possessed of all the necessary qualities, he has a task before him which few persons who knew the amount of labor involved would undertake.

California for Apples

Only a few years ago it was the general opinion that apples could not be successfully grown in California to any extent; but probably nowhere on the face of the earth today are better apples produced than in this State. The best are grown in the foothills, in the mountain valleys or in districts near the ocean. In the large, warm, interior valleys nearly all varieties are inclined to be inferior in quality; and in the southern valleys of the State they are almost always positively so.

By His Deeds Shall Ye Know Him

A tribute to Burbank from the pen of

Bailey Millard

WOULD that I were capable of expressing what I feel about the bigness of Luther Burbank and his wonderful work. But there are some things which, as Browning says, "break through language and escape."

Some day a great scientist who is capable of telling the worth of Burbank and what he has done for the world will pen a fitting tribute to him and his splendid activities, but I am not a scientist and therefore have only a layman's appreciation of these things. Still I am able to say that no one man ever has done a tenth part as much as Burbank in the tremendously important field of increasing food production.

Take the single item of the Burbank potato: Its origination and cultivation have added at least $20,000,000 worth of this important product annually to the world's food supply, and when we consider what this great man has done by way of fruit improvement and increase it is impossible to estimate the value of his work.

So, hats off to Luther Burbank, the greatest naturalist and originator of new vegetables, fruits and flowers the world ever has known!

Luther Burbank

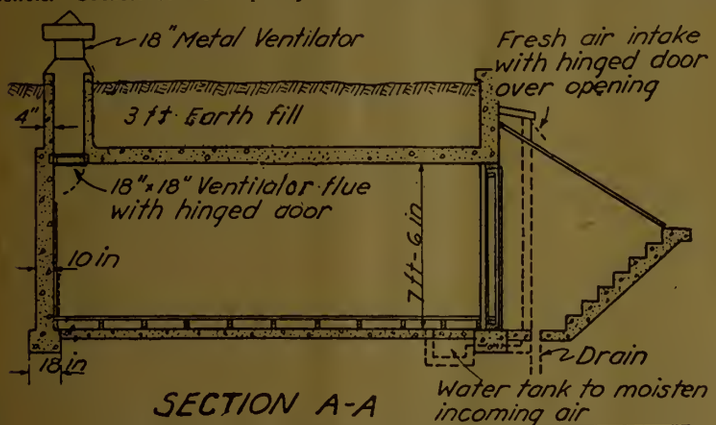
How to Build a Concrete Vegetable Storage Cellar

With Working Plans and Complete Directions

CALIFORNIA farmers who have constructed vegetable storage cellars are very enthusiastic about them. The prevailing idea that the investment is unwarranted in California is now known to be a fallacy, and any farmer who keeps potatoes, beets, fruit or vegetables will find such a cellar a source of the greatest satisfaction; it is true that we do not have the severe cold weather experienced in the East, but it is just as necessary to protect roots, fruit and vegetables from extreme dampness and light frosts.

Capacity of Cellar

The cellar described in the accompanying plan has a capacity of 800 bushels. Greater or less capacity can be secured by adding to or taking from the length of the plan. Each aditional foot of length increases the storage capacity 40 bushels.



SECTION A-A

Choice of Materials

Although in the dry portions of the country, wood cellars are kept in use for years, they are not permanent and it is only a question of time until the changing soil conditions will cause rot. A concrete cellar is rot-proof, water-tight and very strong, and the far-sighted farmer who builds a cellar at all will undoubtedly choose that material which makes for permanence. The average man has had experience in the use of concrete and knows that it is not necessary to hire skilled labor in order to secure satisfactory results.

The Preparation

An important consideration in building is thorough preparation. The excavation should be carefully and properly made and sufficient material for forms collected. No estimate is given of form lumber, as the average farm possesses sufficient odds and ends to make at least part of the forms. It is worth the extra expense, however, to have first-class form material; any one who has attempted to do a good job of concrete building with make-shift forms knows the difficulties involved. The forms for the roof should be heavy and well supported from below. They should be so made that they can be dropped inside the cellar when the concrete has set. A little extra time spent in making the forms will be well repaid.

Pouring the Concrete

The less "joints" which are made, due to leaving the work overnight, the better. By having the work planned ahead and all materials on hand it is possible, by employing enough labor, to "pour" the entire job in one day. If it is necessary to interrupt the work, rough, jagged edges or pieces of metal should be embedded in the wall which is left, to form a better union when the work is resumed. Construction experts advise that it is worth while to put on an extra crew, if necessary, in order to get the concrete in rapidly.

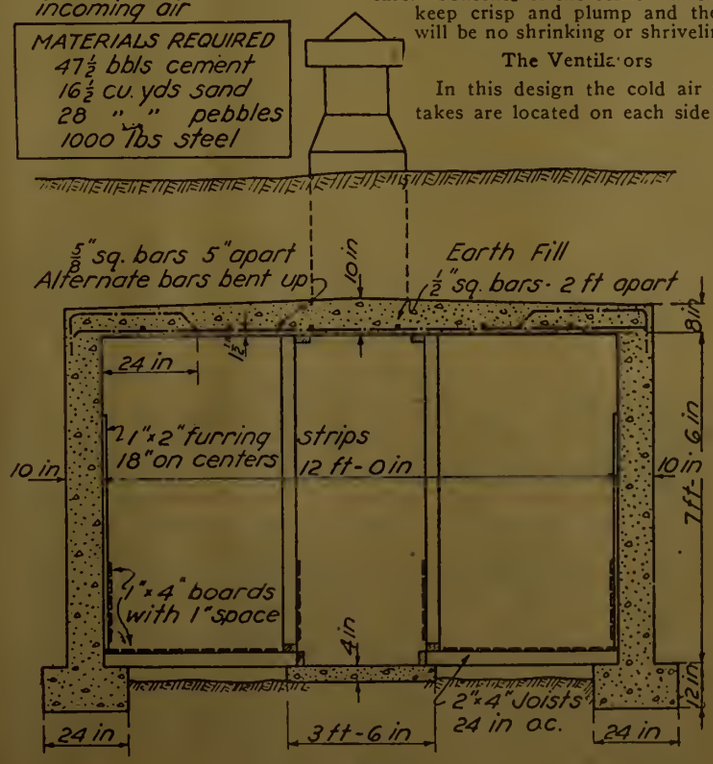
The large ranch, where considerable concrete work is done, can well afford a mixer, to be operated with power. If the material is to be mixed by hand, it is important that a smooth platform be constructed, of large enough size to permit of the most advantageous work. The water supply should be assured. If water must be hauled, a tank-wagon or water-tight barrels must be provided. If barrels are used, they may be left on the wagon and the water siphoned out with a hose. Although it is customary to measure the materials in wheel barrows, a good method, which assures uniformity, is to make measuring boxes, without top or bottom and having four handles for lifting. One should be made for sand and one for gravel, each of the proper size to hold material for one batch. They are set upon the mixing platform, filled level with the top and then lifted up, leaving the proper amount of material on the platform, ready to be mixed.

Thorough mixing, first dry and then wet, is essential to good concrete work. It is necessary to turn each batch at least three times

A bill of materials is given with the drawings. The material should be assembled before the work is begun, the cement being carefully protected from all dampness.

Having assembled sufficient amounts of clean, coarse sand and pebbles or "grit," the builder will use the proportion which tests and experience have shown to offer the greatest strength and durability, commensurate with economy. In the storage cellar, a mixture of 1:2½:4 (that is, one part cement to two and one-half parts sand, to four parts gravel or pebbles, may be used throughout, except for the roof, which should be made of a 1:2:4 mixture.)

MATERIALS REQUIRED
47½ bbls cement
16½ cu. yds sand
28 " " pebbles
1000 lbs steel



SECTION B-B

The Reinforcement

Reinforcing steel must be used in the roof. Bars ⅝ inch square are spaced 5 inches apart to center and placed 1½ inches from the bottom of the slab. Alternate bars are bent up at a point two feet from the inside cellar wall. The ends of all bars are bent at right angles to form a hook about three inches long. This insures good anchorage in the concrete. One inch square bars, placed two feet apart, are run lengthwise of the cellar. In all, about 1000 pounds of steel will be required. On one ranch where a cellar was built, the owner saved considerable expense in reinforcing by breaking up several abandoned farm machines, from which he secured a large quantity of metal rods and braces. Some of the smaller chunks of metal were used in the walls as "filler."

Moist Air Essential

In order to keep the air in a storage cellar moist, water tanks are built at the foot of the cold air intakes, just inside the wall. The incoming air, passing over the tanks, picks up moisture. Contents of the cellar will then keep crisp and plump and there will be no shrinking or shriveling.

The Ventilators

In this design the cold air intakes are located on each side of the entrance door. Cold air enters the cellar under the floor and passes upward through and around the stored contents, cooling them. Floor, walls and partitions of the various bins are so constructed as to facilitate ventilation. The warm air in the cellar that rises to the ceiling is drawn off by the roof ventilators. In this way circulation of air is complete and in the course of one night the air is changed many times. On warm days and nights all ventilators and intakes are closed so as to keep the cold air in the cellar. They are not opened up again until the next cold spell.

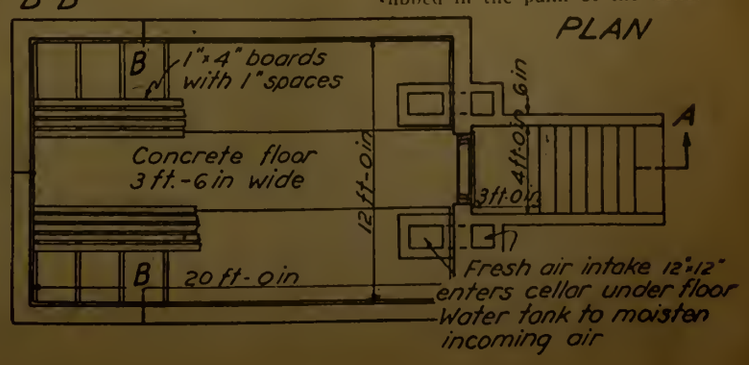
Correct Storage Temperature

Apples, potatoes, beets, carrots, turnips and other fruits, roots and vegetables will keep best at a temperature between 35 and 40 degrees F. The normal temperature of the earth is around 50 degrees F., much too high for ideal storage conditions. In order to reduce and maintain the proper temperature in a storage cellar, cold air must be brought in from the outside. During the late fall months there are nights when the temperature drops near or below the freezing point. Advantage must be taken of these nights to cool the storage cellar.

Source of Information

At 111 West Washington street, Chicago, there is maintained an office of the Portland Cement Association, an organization of a large number of manufacturers. This Association includes an educational bureau which has for free distribution a number of useful publications. Any farmer who contemplates doing his own cement work will find these books of great service. There is one on "Mixing and Placing Concrete;" another deals with "The Construction of Foundations and Low Walls," and a third with "The Construction of Concrete Floors." The Association also publishes free working drawings for large commercial storage cellars.

Some of the advantages that may be anticipated from the ownership of a storage cellar are: A saving in money, due to better keeping of vegetables and prevention of sprouting and the facilities for holding for a better market; a supply of fresh fruits and vegetables for the table during the winter months; a saving of food that might otherwise be wasted



Concrete Suggestions

Concrete which is exposed to the sun after being poured, should be soaked with water each day for a week or two. This will allow the interior of the walls to dry uniformly with the exterior, and thus prevent scaling or cracking.

The standard cloth or paper bag of cement weighs 95 pounds. Four such bags make a barrel of 380 pounds.

Use only coarse sand for concrete, or if some fine sand must be used, mix it with coarse sand. The finer the sand, the more cement must be used. The sand should also be clean showing no indication of dirt when rubbed in the palm of the hand.

Must California Housewives Use Oklahoma Brooms?

THIS article explains fully all of the processes essential to the production of a successful crop. Any reader who proposes to experiment with broom corn should study the subject carefully and make all preparations during the winter, so that there will be no delay in planting, as best results will be obtained if the ground is fall plowed or properly prepared early in the spring and the seed sown in April.

By Albert J. Mason

A "STRAW VOTE" among California agricultural experts as to the feasibility of growing broom-corn in the State would probably result in defeat of the measure. However, in a brush with that well-known enemy of progress, "It-Can't-Be-Done," advocates of the industry have won a sweeping victory, for recent events seem to show that past failures have been due to incorrect cultural methods rather than unfavorable climatic conditions.

THERE are those who might contend that a railroad engineer could not raise anything but a dust. The fact that he has seen nearly thirty years service on the Southern Pacific, however, has not killed in R. W. Newbill of Los Angeles, the farming instinct. In fact, he is all the more enthusiastic over his farming enterprises because in addition to bringing in a nice income and supplying the larder of his city home, his ranch offers a means of obtaining recreation and exercise after his trying duties on the road. And indirectly, it must be admitted, he is responsible for the raising of a great deal of dust!

For Mr. Newbill has just harvested a big crop of the corn from which the brooms of commerce are made, and his latest experiment promises to be an exceptionally profitable one. With the straw selling from $250 to $450 a ton for the better grades, and with the seed worth a good price as hog feed, his yield of five tons of straw and 10 tons of seed from eight acres is worthy of note.

The first trip to Mr. Newbill's ranch having developed these interesting figures (not to mention some substantial additions to the writer's larder, such as Casaba melons, sweet potatoes and peanuts raised on the ranch) it was an unusual pleasure to accept the cordial invitation of the genial farmer-engineer to "come again and bring the camera." Lest the reader suspect the writer of ulterior motives, he feels called upon to point out that after the second visit he vigorously protested against Mr. Newbill's insistance upon filling the car with good things to eat, but again had to return home with the tonneau well filled. His "disappointment" over this turn of affairs, however, was mitigated by the fact that the camera faithfully recorded some interesting processes in the harvesting operations, which, as the accompanying illustrations show, included the use of a home-made threshing machine.

California Experiments

But that is getting ahead of our story. Our readers will be most interested in knowing just how to raise and harvest this crop, which we may say right here, promises to become an increasingly important one in California. In addition to the small acreage grown in the vicinity of Los Angeles, several good sized tracts have been devoted to the crop in Imperial Valley. In the San Joaquin and Sacramento valleys even more extensive plantings have been made.

Various estimates place the total area devoted to the crop in the State this year at from 3500 to 5000 acres. An extensive experiment in the northern part of the Tulare Lake bed, involving the planting of some 400 acres, proved unsatisfactory. A tract of 200 acres on the lower end of the lake, near Alpaugh, produced a fair crop. The best results appear to have been obtained by a group of men in Kings county. These farmers, according to F. Max Egerer, Los Angeles broom manufacturer, who has purchased large quantities of California brush, are all in the vicinity of Le Moore, where they secured seed from D. C. Sterrett, an experienced grower. Although the total acreage was small, they are all reported to have produced straw of excellent quality. In the Antelope Valley, 200 acres of broom corn yielded a fair crop without water.

All in all, the experiments conducted so far in California have been, with a few exceptions, unsatisfactory. The straw produced was of coarse quality, this characteristic being generally attributed to the cool nights. There are those, however, who will argue otherwise. Because of the hot nights experienced in the corn belt it is, indeed, possible to grow broom corn of high quality in sections less temperate and humid than California. In fact, large acreages are grown in Ohio, New York, Indiana and other Eastern and Middle Western States.

Interesting Possibilities

Past failures, however, have in no way discouraged the men who believe in the possibilities of the crop for California. The fact that some growers have been successful naturally arouses curiosity as to their methods. Invariably it is found that they have exercised exceptional care in obtaining seed. In fact, the success or failure of the crop, it is agreed by all experts, hinges largely upon the question of seed. It is necessary to have clean, selected seed, of high germinating power. The inexperienced farmer who plans to raise broom corn should secure guaranteed seed produced in some section where broom corn is an important crop and should experiment on a small scale until he has learned whether or not the crop is adapted to his particular soil and climatic conditions. The Oklahoma Agricultural College at Stillwater, Oklahoma, and the Kansas State Agricultural Experiment Station at Manhattan, Kansas, have lists of reliable seed growers in their districts. If a number of farmers in one locality desire seed, they may do well to have their local dealer order at wholesale a sufficient quantity for all.

Home Seed Production

Having satisfied himself that he has the proper location for the corn and has learned how properly to grow it, the novice should immediately establish his own seed-plot. Broom corn inter-crosses so readily with all the other sorghums, including Sudan grass and Johnson grass, that in order to keep the seed pure, it is necessary to have the plot well isolated. As the plants in the seed plot approach the heading stage, all that are not true to the variety sown, as indicated by different heights, sizes, shapes or colors, should be removed from the selected rows. The plants allowed to remain should be inspected frequently as the brush begins to emerge from the boot. All spiky brush or that with a large central stem, should be removed before it flowers and cross-fertilizes the good brush. After the first year it will be increasingly easy to maintain the seed true to type and the corn will, moreover, become acclimated.

Successful growers believe further more that in California the regulation of moisture by irrigation offers a means of offsetting the effect of the cool nights. By causing the plants to maintain a steady growth and by forcing them with a good irrigation just as the heads are forming, it is possible, they believe, to establish conditions equal or even superior to those found in the Eastern broom corn States, where natural rainfall must be depended upon.

Those sections of the State having the warmest nights, are of course, (other considerations being equal) best adapted to the growing of the corn.

It seems reasonable to believe that seed so susceptible to inter-crossing, deterioration or improvement as broom corn seed might soon become adapted to the locality in which it was grown, and that a special California strain might be developed by careful selection for a few years. Some attempts have been made along this line, but they have not been consistent.

Kind of Soil

In this State the crop seems to thrive best upon a sandy loam soil. Mr. Newbill planted upon a very sandy soil, which had previously been used for alfalfa, and secured a very heavy stand. It is possible, however, to have the soil too rich. It is well to remember that broom corn is a member of the sorghum family, and is especially adapted to dry, hot climates. Just as the crop may be improved and increased by the judicious use of water, so it may be forced to the point of damage by too much water or over-rich soil.

Time to Plant

A well-packed seed bed, with loose fine surface, gives best results. The seed should be planted as early as possible in the spring. By planting in April, the grower can get the corn off in time to use the land for some other crop in the early fall.

There are three recognized varieties: the Standard, which grows from 10 to 14 feet tall and is best for dry land; the Dwarf, which comprises about two-thirds of the broom corn grown in the United States and is favored on irrigated farms; and the Dwarf-Standard, a cross between the two which is meeting with general favor because of the fact that it is said to combine the good points of both. The true dwarf-standard seed, however, is rather difficult to procure.

Sowing the Seed

It is customary to plant from two to two and one-half pounds to the acre, a poor soil requiring less seed than a rich soil. The seed should be sown in rows from 30 to 36 inches apart, about 80 to the rod, and not over two inches deep. An ordinary corn planter or a lister is used. Listing is recommended for extremely sandy soils, subject to blowing. The planter must be fitted with special plates. If the proper size plates are unobtainable, blank ones may be drilled out, or larger holes may be filled with babbit and drilled to the proper size. Holes from three-sixteenths to one-fourth inch in diameter will be required. The seed

(Continued on Page 10)

ADDITIONAL technical information about broom corn may be obtained from Farmers' Bulletins 958 and 968, which will be mailed free to any one addressing a request to DIVISION OF PUBLICATIONS, U. S. D. A., WASHINGTON, D. C.

Harvesting the Broom Crop

(1) The home-made threshing machine in action.
(2) Mr. Newbill cutting the heads from the stalks in the field.
(3) A "close-up" of the threshing drum, showing the spikes which strip the seed from the brush.

Rice in Storage

Foiling Warehouse Pests

WITH the task of harvesting California's 120,000 acres of rice almost completed, and the crop estimated at more than three and one-half million sacks, the problem of caring for this $15,000,000 asset in such a manner as to minimize damage in storage is a pertinent one.

That the vast losses which have always accompanied the handling of the nation's rice crop will not be tolerated this year is a foregone conclusion, for this cereal has jumped into the limelight as a distinct war asset. In previous years the use of rice in the United States has depended largely upon the locality; in the south it was served as a custard or pudding and in the north as a vegetable. Now, however, it has attained first rank as a conserver of wheat and flour.

Precautions Suggested

In order that California may not fail to maintain the high standard of excellence for which she is justly noted, the Horticultural Commission is urging the universal observance of scrupulous care in the storage of the crop.

Prevention of infestation by stored-product pests is of great importance. Cleanliness is the first consideration and the grower or dealer should not store rice in a warehouse where other grains have been kept without first thoroughly cleansing it of all dirt and refuse containing sweepings of grain or meal, as these serve as a breeding place for numerous pests. Store houses should be tight enough to prevent the entrance of insects.

After the rice has once become infested the best method of treatment is fumigation with carbon bisulphid. If this is to be effective the warehouse must be tight in order to retain the gas. Carbon bisulphid is a liquid, which evaporates very quickly; it is the gas produced which kills the insects. Since the gas is heavy and settles, the liquid should be placed in shallow pans on top of the rice.

Amount to Use

The gas should be allowed to act for 48 hours unless the products are to be used for seed, in which case it must not be left longer than 36 hours. The rice should be protected from re-infestation after treatment. If the warehouse is tight and the temperature above 67 degrees Fahrenheit use 5 pounds to each 1000 cubic feet of space. If the temperature is lower than 67 degrees Fahrenheit or if the warehouse is not tight, the dosage must be increased.

Carbon bisulphid is deadly to all forms of animal life and should be handled accordingly. The gas is very explosive and proper precautions must be taken to prevent its being ignited.

Heat has been found very useful for destroying pests of stored products, but most warehouses in California are not equipped to use this method.

The appearance of unusual pests or conditions, not regulated by ordinary means of control, should be reported to the nearest horticultural commissioner, who will be glad to investigate the difficulty and suggest means of treatment.—Harry S. Smith, Superintendent Insectary Division, California State Commission of Horticulture, Sacramento.

Rice growers are beginning to realize that their crop offers tremendous possibilities for advertising and publicity. It is generally believed that the American public can be educated to use the important cereal in larger quantities and more different forms.

Teaching Persians How to Farm

Wonderful Work of the Armenian-Syrian Relief

PROFESSOR ROLAND S. VAILE, an agricultural expert from the Experiment Station, Riverside, California, is a member of a commission sent to Persia by the National Armenian and Syrian Relief Committee of New York City.

The commission is headed by Dr. H. Pratt Judson, president of the University of Chicago. Its purpose is to reinforce the staff of relief workers already in Persia and to help stem the tide of disease and destitution.

In August the American missionaries of Urumia were compelled to move 80,000 people from that district to Hamadan, a distance of 400 miles, in order to save them from massacre by the Turks, who held that region. Two-thirds of the people were practically starving, day by day, hour by hour. The conditions were unbelievably terrible.

Agricultural Aid

Professor Vaile is taking a supply of seed grain from America and is fully authorized to purchase large quantities in India. His work will be to teach intensive agriculture to the Persians and Armenians living in the plain of Urumia, one of the most fertile districts in the world. The relief committee propose then to raise large quantities of food supplies so that they may control the resources that so frequently fall into the hands of rapacious grain merchants.

Rarely has the world been more thrilled than when word came that General Allenby had taken Jerusalem. The city sacred to Jew and Gentile alike, but under the heel of the unspeakable Turk for nearly thirteen centuries, is now forever freed from that malign influence. The splendid victory, bringing freedom to thousands, disclosed, however, an awful state of things in the city. More than fifty thousand destitute and starving were found.

The Armenian-Syrian relief was appealed to and $25,000 was immediately wired to relieve the distress. The condition of these people was awful; starving, emaciated, staggering figures, their bodies covered with a few rags. Orphanages were opened for the children and hospitals for the sick. All who could work were employed as rapidly as work was available.

What We Owe Them

The ancestors of these suffering ones, including Armenians, Syrians, Greeks and Jews, gave us either directly or indirectly most of what has entered into the warp and woof of our civilization. They gave us our prophets, Apostles, Bible, religion and our Savior, and much of our philosophy, ethics and art.

The National committee for Armenian-Syrian Relief, composed of such men as ex-President Taft, Hon. Charles Evans Hughes, Cleveland Dodge, John R. Mott, Cardinal Gibbons and Bishop Greer, have with the full approval of President Wilson and Congress prepared plans for a nation-wide campaign January 12th to 19th for the purpose of raising $30,000,000.

Let all who can, help this noble philanthropy. This offers the man who wants to be both patriotic and philanthropic a fine opportunity to dispose of part or all of his Liberty bonds in the most useful way. But all donations of any nature will be gladly received.—James P. McNaughton, Southern California Executive Secretary, 517 Wright & Callender building, Los Angeles.

Very Black and Beautiful

THE Aberdeen Angus breed has many enthusiastic supporters. Although the large range herds are comparatively few, the increasing popularity of the breed is a natural result of the tendency to raise more beef cattle under fence and on farm pastures, as the area of open range decreases.

Almost invariably the championship for carloads of fat steers and the first prize in dressed beef contests in the big shows goes to the Aberdeen Angus. There are those who insist that the prejudice of range cattlemen against the Angus is unfounded, but it is quite generally admitted that the blacks are not as good rustlers as the red, white and roans or the white faces, and do not prove as hardy on the range. For beauty of form, and for quality of beef, however, a well finished Aberdeen Angus is hard to beat, and we look for rapid development of the already keen interest shown by Pacific Coast breeders, who have for an inspiration one of the finest herds in America, that of Congdon and Bottles of Yakima, Washington, who are the breeders of "Idessa of Rosemere."

This Is Idessa of Rosemere

The famous Aberdeen Angus aged cow that won the championship at the California State Fair and is now on her way to Chicago for the International Live Stock Show. She will probably be seen also at the postponed San Francisco International.

The New Carob

Interesting Story Coming

RECENT experiments with the carob tree have lead to the development of a new strain of this interesting plant. The pods of this budded stock have shown a sugar content of 52 per cent. In view of the proved feeding value of carob pods, the tree is now attracting unusual interest as a utility-shade, or "dual-purpose" tree. In a coming issue we will publish an interesting article about the New Carob, as well as other tropical and sub-tropical food producing plants, by Mr. J. S. Armstrong of Ontario, who has introduced several new varieties of carob.

Mr. Armstrong's career is one which holds inspiration for any ambitious young man. Nearly 30 years ago he came to California from Ontario, Canada, and settled with the colony in San Bernardino county, where the town which now bears the Canadian name was organized. Although a cabinet maker by trade, he went to work in a nursery. Becoming interested in the business and having a natural liking for it, he soon acquired a small establishment of his own.

What Success Brought

His business expanded gradually year by year, being built up largely upon the policy of supplying the highest grade of fruit trees to the neighboring ranchers. Thousands of acres of the older successful orchards in that vicinity received their start from his nursery. The business was expanded to include all varieties of fruit and ornamentals, and the mail order department soon became the principal influence in shaping the growth of the establishment. By dealing direct with the buyer, Mr. Armstrong rapidly built up a strong trade which grew and endured. In fact, he now employs regularly from 30 to 80 persons in the office and nurseries. The ornamental nursery and offices occupy a large tract in the heart of Ontario, while more than 300 acres, located less than three miles from the city, is devoted to the propagation of commercial stocks. His trees and plants are shipped everywhere.

The office is one of the most handsome buildings in the town, and Mr. Armstrong enjoys a unique position in community life, being a director in the Chamber of Commerce, president of the school board, and a director in a local bank, in addition to holding a number of other public offices.

Mr. Armstrong ascribes his success principally to two things: hard work and the selection of able "lieutenants." By securing a recognized expert or specialist to head each department, he has been able, he says, to keep the entire establishment up to the highest point of efficiency.

Orchard and Farm considers itself fortunate to be able to secure an article from the pen of a man of his experience and ability, and we can assure our readers that it will be well worth waiting for.

Two soldiers, one a dusky-skinned fighter from Georgia, were discussing in France the chances for return of a party of volunteers who were about to depart on a dangerous mission.

"Man," said the ebony-skinned doughboy, "Dey got almost as much chance as a naked colluh trooper ridin' a black hoss agin a snow bank."

The Nature Cure for California Soils

by

Hardy W. Campbell

"The Man Who Makes One Inch of Water Do the Work of Two."

Hardy W. Campbell
A Graduate of the School of Experience

MR. CAMPBELL is regarded as "The Apostle of Better Farming." Through his famous books, of which thousands of copies have been distributed, and through his connection, covering more than a quarter of a century, with the great transcontinental railroads, he has aided countless farmers throughout the west to increase their yields, winning many doubters to his side by demonstrating on their own land that his theories are correct.

His previous articles, which appeared exclusively in Orchard and Farm, made a tremendous sensation. Now, after two years of close observation of local conditions, he returns to our columns, more firmly convinced than ever that California soils are not "worn out" and that the farmers of the State can greatly increase their yields by proper cultivation. —The Editor.

NOWADAYS most of the illnesses of man can be traced to wrong living. "The Nature Cure"; that is, proper regulation of one's mode of living, is no longer a fad, but is more important than drugs in the control of disease. Just as persistent violation of the rules of health will break down the strongest constitution, so improper management of any soil will inevitably decrease the yields which it is capable of producing.

It is my purpose to show that much of the so-called worn-out soil of California is only "sick," as the result of incorrect methods of tillage, and that in many cases it can be brought back to a high state of efficiency without the use of "drugs and stimulants" in the form of heavy applications of fertilizer and water.

Few States have more good soil than California and yet it is unfortunately true that a large per cent of her best unirrigated soil is and has been for some time very low in productivity. In the course of numerous trips over different parts of the State, during which I interviewed many farmers, I found many who were of the opinion that the present average yield is practically all that can be expected without adding fertilizer or employing irrigation

In the first place, most of the land is looked upon as worn out; therefore the big crops once produced are believed to be no longer possible. The belief exists secondly, that to farm this land is purely a gamble based on the chance of having the requisite amount of rainfall at the right time. Again, the farmer thinks that the grain must be sown at or near a fixed time, and that he must trust to the rains to bring it up. Finally he believes that he must seed heavily because of the possibility that much of the seed will either rot or sprout and die.

Established Beliefs

The average man who has always lived in this environment and has never seen any radical departure from such methods, will naturally shake his head and smile knowingly when we suggest changes. Frequently we receive such replies as this: "I have lived here all my life. You will know California better after you have been here a few years." To all these assertions I have returned a humble smile, adding: "Perhaps, Mr. California Farmer, you are right but I still believe you are wrong. My reasons are based on the fact that the average soil invariably responds in proportion to the treatment and care conferred upon it, whether it is in California or elsewhere."

Observe the prune, peach, fig, orange or any other orchards in California, and you will see that the largest crops and the best fruit are from the trees that have received the most thoughtful and careful treatment. The cow that gives the most milk is the one that is properly fed and cared for with regularity. The automobile renders service in proportion to the timeliness and kind of care bestowed upon it. You may, however, put everything in perfect order on your machine and supply the lubricating oil and gasoline, but let one wire be disconnected and all your care and expense will be rendered useless.

The soil, for purposes of comparison, may represent the frame and the mechanical part of the machine Then there are three essentials for production: Air, water and heat, and it is up to the farmer so to control and combine these as to secure maximum results. As evidence that all results hinge on the proper combination of these factors, please note illustrations (1) and (2) which represent two fields of wheat containing 160 acres each, grown in northeastern Colorado in 1915; only a road divided the two fields, which contained exactly similar soil; i. e. new prairie soil broken in 1914. Field (1) yielded 39 bushels per acre while field (2) yielded only nine bushels. Same rainfall, same sunshine and same kind of soil, but a different "combination."

How It Was Done

There was very little difference in the depth of plowing of the two fields. No. 1 was seeded with 25 pounds of winter wheat per acre, and No. 2 with 60 pounds. While the quantity of seed had something to do with the final result, the principal difference in this case was in the handling of the soil. Although both fields were plowed about the same time with separate tractors, the tractor which pulled the plows in field No. 1 pulled at the same time a heavy, corrugated roller, small in diameter, directly behind the plows. This roller was weighted sufficiently to pack the furrow firmly, and to crowd out all space in the bottom. After the plowing and rolling were done, the top was cultivated about two inches deep. Later in the season and possibly about two weeks before planting, it was again cultivated at the same depth, in order to loosen the top and kill the weeds.

Field No. 2 was simply plowed and left rough until just prior to seeding, when it was double disced, the soil being cut and loosened up to the bottom of the plowing. I happened to be present when the owner started discing and asked why he was working so deep. He replied that he believed in giving land a good discing just before seeding in order to get the seed bed in good shape. Let us emphasize the fact that this loosening of the soil deeply just prior to seeding is a serious mistake, but is one that is recklessly made by many. His thoughtless procedure cost this man, as it has others, many bushels of wheat. In other words had he proceeded with greater and more intelligent care, fully realizing that he must have at seeding time a fine, firm, moist seedbed, and had he done all his work to that end, he could have saved nearly 100 bushels of seed on the 160 acres and added three or four thousand bushels to his crop in the end.

More Examples

I quote the above facts because I have seen so much similar work done in California. Last June, I was near Nelson in the Sacramento Valley, where I saw a man plowing a fallow field the second time It had been plowed early and a strong growth of weeds had started. Had the surface of this field been cultivated once or twice, just enough to keep the weeds from growing, and had the top two inches been kept loose, the seed bed would have been firm and moist, and during the warm weather a liberal amount of available plant food would have been added by bacterial action. It was just this combination that made the yield of 39 bushels possible on field No. 1 illustrated above. Instead of the possible results that might have been realized by proper cultivation, moisture was lost by direct evaporation from the surface and then more moisture was pumped out by the growing weeds. The second plowing destroyed the seed-bed; all the soil as deep as it had been plowed, was completely dried out Some farmers seem to think that the simple plowing under of a few green weeds adds to the immediate producing qualities of the soil. Nothing can be farther from the truth. The loss of the moisture taken by the growing weeds and the drying out and loosening of the soil at the second plowing are many times more detrimental than beneficial.

A Nevada Case

One more illustration of what happens through failure to provide a firm seed-bed, and thus to obtain the greatest utility from soil water, may add a little further evidence as to the correctness of our conclusions

In the Metropolis district, Elko county, Nevada, two fields that were cropped in 1917 were plowed about five inches deep that fall and left to

(Continued on Page 31)

A Striking Contrast

No. 1 (above)—A field of wheat prepared and seeded according to the Campbell method. Yield, 39 bushels to the acre.

No. 2 (below)—A field on the other side of a road (same soil), prepared in the ordinary way and seeded with 35 pounds more seed to the acre than No. 1. Yield, practically nothing.

Poultry Information

To know how is to succeed. "The other fellow's ideas," applied in conjunction with practical experience are often the means of increasing profits. Anyone desiring to make a special study of poultry in connection with the present campaign to increase production on farms, will find "tips" of interest and value in the following publications which may be had free from the U. S. Department of Agriculture, Washington, D. C:

	Farmers' Bulletin
Back-Yard Poultry Keeping	889
Hints to Poultry Raisers	528
Standard Varieties of Chickens	806, 898
Poultry House Construction	574
A Simple Trap-Nest for Poultry	682
Natural and Artificial Brooding	624
Natural and Artificial Incubation	585
Important Poultry Diseases	530
Community Egg Circle	656
Squab Raising	684
Duck Raising	697
Geese	767
Turkey Raising	791
Mites and Lice on Poultry	801
Capons and Caponizing	849
The Guinea Fowl	858
Marketing Eggs by Parcel Post	830

The Agricultural Experiment Station, University of California, also has for free distribution publications dealing with poultry raising. These may be obtained from Berkeley.

Poultry House Whitewash

Whitewash is the cheapest of all paints, and may be used either for exterior or interior surfaces. It can be made by slaking about 10 pounds of quicklime in a pail with 2 gallons of water, covering the pail with cloth or burlap, and allowing it to slake for one hour. Water is then added to bring the whitewash to a consistency which may be applied readily.

A weatherproof whitewash for exterior surfaces may be made as follows: (1) Slake 1 bushel of quicklime in 12 gallons of hot water, (2) dissolve 2 pounds of common salt and 1 pound of sulphate of zinc in 2 gallons of boiling water; pour (2) into (1), then add 2 gallons of skim milk and mix thoroughly. Whitewash is spread lightly over the surface with a broad brush.

Using Table Scraps

Table scraps and kitchen waste are best prepared for feeding by running them through an ordinary meat grinder. After the material has been put through the grinder it is usually a rather moist mass, and it is well to mix with it some corn meal, bran, or other ground grain until the whole mass assumes a crumbly condition. The usual method is to feed the table scraps at noon or at night, or at both times, as may be desired, in a trough or on a board. All should be fed that the hens will eat up clean, and if any of the material is left after one-half or three-quarters of an hour it should be removed. If allowed to lie it may spoil and would be very bad for the hens.

Effect of Feed Upon Eggs

It is well known that the milk of a cow quickly registers changes in feed and is frequently contaminated by acrid or "strong" feeds. Similarly, it has been demonstrated that there is a vast difference in eggs, according to the way the hens are fed. Hens which never get any sour or spoiled garbage and which receive plenty of sweet skim milk and clean grain, together with pure water, produce eggs of superior flavor. There is no doubt about it. There may be a vast difference even in "strictly fresh, hen-laid eggs," marketed the day they are laid. Those from one establishment will be delicious in flavor; those from another disagreeable.—Albert J. [illegible]n

More water and less feed for poultry just before marketing is advocated as a means of preventing the [illegible] which occurs among [illegible] fattened for market.

More Eggs With Green Feed

By Arthur A. Peters

Poultry Husbandman, U. S. Department of Agriculture

THE cardinal points in the "More Poultry Campaign," as being conducted by the U. S. Department of Agriculture, are embodied in the following nine recommendations:

First—Keep better poultry; standard bred poultry improves the quality of products and increases production.

Second — Select healthy, vigorous breeders to produce strong chicks.

Third—Hatch early to produce fall and winter layers.

Fourth—Preserve eggs for home use when they are cheap.

Fifth—Produce infertile eggs when not hatching.

Sixth—Cull the flocks to eliminate unprofitable producers.

Seventh—Keep a small back-yard flock to supply the family table.

Eighth—Grow as much of your poultry feed as possible.

Ninth—Eat more poultry and eggs to conserve the meat supply.

These nine essential features should be posted in a conspicuous place in the homes, poultry houses and hat bands of all poultry producers and their employes. There cannot be a successful poultry plant which is not based upon some of these points. Limited space prohibits going into detail on all the various features, as outlined. At this particular time it is well to prepare for No. 3, the vital point of early hatching. This is absolutely necessary, as all breeders must realize, in order to obtain fall and winter layers when egg prices are best.

Anticipating the Hatch

In No. 4 (preserving eggs when cheap for home use), we believe that we have embodied a principle of vital importance to the public in general. It is astonishing to realize the extent to which this suggestion has been carried out during the past season. In many localities it has been reported that many thousands of dozens of eggs have been put down in water glass for home use. This process has supplied those families with eggs for use upon their tables, thereby conserving the meats, and has given them a liberal supply for cooking, which, in some families, at the present prices of eggs, would be out of the question.

The preservation of eggs makes it possible to eat more poultry products and conserve the meat supply, as the eggs are placed in storage at a time when cost of maintaining the flock, as well as prices obtainable for the products, are lowest. Thus there is a strong correlation between points 4, 7 and 9.

Growing Green Feed

The eighth suggestion, "Grow as much of your poultry feed as possible," is indeed a vital principle and should be carried out by every poultry producer to the etxent of his ability and surroundings. The idea is applicable to all conditions of poultry culture, either in the back yard, upon the farm, or in the commercial poultry plant. In each case some kind of poultry feed should be produced. While it is impossible for everyone to produce grains, it is possible and practical for every producer to furnish a liberal supply of green feed. Even in the back yard, a family garden will aid greatly towards the production of green stuff, and the lawn clippings also can be utilized.

Upon the farm and in the commercial plants the green feed problem is a very vital one. Especially favored are the poultrymen of the Pacific Coast territory, where a small tract of land will produce an abundance of succulent green feeds, such as beets, mangle-wurtzels, kale, rape, alfalfa and cabbage, some of which will grow in profusion almost entirely through the year.

White Wyandottes

A tried and true standard utility breed, properly called "dual-purpose" and a favorite for eggs and meat on many farms.

When Dr. Edward Brown, the English poultry expert, visited our country last summer, he made a strong point of the possibility of producing more and a greater variety of green feeds for poultry. He asserted that, with plenty of green feed, the grain ration could be reduced 20 per cent and that production would not suffer thereby.

Variety and Abundance

Coming in contact with a large commercial producer, he received local confirmation of his ideas. This poultryman stated that not only is it necessary to supply an abundance of green feed, but that it is as necessary to vary the diet, as in feeding grain. He said that by feeding alfalfa in green state, chopped and given in troughs, he brought about an increase in egg production, and that, by mixing the alfalfa with beet tops, he forced a still greater increase. He has learned, he said, that the larger the quantity and the greater the variety of green feed consumed, the greater the increase in production.

In the light of such experiences we feel that poultrymen everywhere should make more of an effort to grow and feed green, succulent stuff, confining themselves, however, to the desirable, well known plants.

Rutabagas offer interesting possibilities, inasmuch as the leaves can be plucked and ground into various mixtures, while the roots will produce many tons to the acre of succulent, nourishing feed which may be ground as needed.

The Food Administration requests that the practice of tying together the legs of poultry when marketing, be discontinued. To tie a number of chickens together with baling wire is not only cruel, it is pointed out, but decreases the market value through injury, bruised flesh and poorer keeping qualities.

Poultry in England is on rations.

Small squashes are fed to give body or bulk to the mash. It is claimed that this resulting mixture is very satisfactory, and is not only particularly palatable to fowls, but also to cats and dogs.

Pumpkins or squash, cooked and mixed in the mash, cause growth of young stock, redden the comb, and give a brilliancy and gloss which indicates perfect health

Got 117 Eggs Instead of 3

Says One of Our Readers

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs," and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 3749 Reefer Bldg., Kansas City, Mo., for a $1.00 package of "More Eggs" Tonic, or send $2.25 today and get 3 regular $1.00 packages on special fall discount for a season's supply. So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied, your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his free poultry book that tells the experience of a man who has made a fortune out of poultry.

One of our subscribers says, "More Eggs increased my supply from 3 to 117 eggs."

Poultry Raisers Write From All Parts of U. S. Wonderful Results of More Eggs.

Five Times as Many Eggs Since Using "More Eggs" Tonic

Since using "More Eggs" do not think there is one chicken that is not laying. We get from 40 to 50 eggs per day. Before using "More Eggs" we were getting 8 and 9 eggs per day.

A. P. WOODARD, St. Cloud, Fla.

"More Eggs" Paid the Pastor

I can't express in words how much I have been benefited by "More Eggs." I've paid my debts, clothed the children in new dresses, and that is not all—I paid my pastor his dues. I sold 42½ dozen eggs last week, set 4 dozen, ate some and had 1½ dozen left.

MRS. LENA McBROON, Woodbury, Tenn

"More Than Doubled In Eggs"

I am very much pleased with your "More Eggs" Tonic. My hens have more than doubled up in their eggs.

L. D. NICHOLS, Mendon, [illegible]

126 Eggs In 5 Days

I wouldn't try to raise chickens without "More Eggs," which means more money. I use it right along. I have 33 hens and in days have gotten 10½ dozen eggs or 126

MRS. J. O. OAKES, Salina, Okl[illegible]

Never Saw Anything Like the "More Eggs" Tonic

I gave the "More Eggs" Tablets to my hens and in three weeks they began laying and laid all winter. I never saw anything like them in the world.

MRS. ALBERT SMITH, Penn R. R. Ore Docks, Lockawana, N. Y.

75 Per Cent Laid Every Day

The "More Eggs" I ordered from you last winter proved out very satisfactory. Fully 75 per cent of my hens laid every day.

H. C. RADER, Greenville, Tenn

Delighted With "More Eggs" Tonic

I am delighted with the "More Eggs" Tonic remedy. I did not get any eggs this winter until I got the "More Eggs."

MRS. J. E. TILLSON, M[illegible]zo, Miss

Better Than We Say

I have used your remedies for two years and they are even better than you recommend.

JENNIE M. JAMES, Unionville, N. C

Never Laid as They Do Now

I am very much satisfied with the "More Eggs" Tonic. My chickens never laid as many eggs as they do now.

W. A. GRUETZMACHER, Great Bend, N. D

Well Pleased With "More Eggs"

I received my "More Eggs" Tonic about the 8th of January and am so well pleased with it I am mailing you $1.00 for another box. I have about 150 hens and get anywhere from 80 to 100 eggs daily and one day over 100.

MISS VERA BOWMAN, [illegible]ochell[illegible], [illegible]

Write Today

You want to know about this wonderful egg producer. Don't delay, but write today to E. J. Reefer, the poultry expert, 3749 Reefer Bldg., Kansas City, Mo. Send $1.00 now for a season's supply of "More Eggs." Or send for Mr. Reefer's free poultry book. It tells the methods of a man who has made a fortune out of poultry. Don't put this off

Special 6 H. P. Tractor for Orchards and Vineyards

—Send for Free Book About It

Hundreds of growers have saved thousands of dollars through the careful purchase of this small tractor especially designed to do special *orchard and vineyard work.* You can do the same.

Send the coupon below for the "TrackPULL Book" which explains these special needs in detail and tells how the Improved 1919 Model Bean TrackPULL Tractor meets them.

Don't buy any tractor built for *general use on farms,* no matter how well known the maker is, until you are sure it meets *your* special *orchard* or *vineyard* needs.

The Bean TrackPULL is built by men who have studied these needs for 34 years and have built machines to meet them.

These Vital Requirements

Your small tractor should turn all the way around inside a ten-foot circle with the tools deep in the soil with full power, the same as on the straight-away.

It should pull easily and steer easily no matter how far *off center* you may hitch the tools. It should "gee," "haw" and turn just like a team, but with more accuracy and efficiency than a team.

These are things that the Bean TrackPULL Tractor does. And 12-year-old boys handle it with perfect ease. Let your boys handle a machine like this and they'll be glad to stay on the place.

BEAN TrackPULL Tractor

Mail Coupon Now

Cut out and mail the coupon below and learn all about this special tractor. The book we send describes the patented single track feature which is responsible for the Bean's unusual action.

This patent does away with pivoting and turning which over-strains one side of a tractor. It permits *full power* on all turns and straight and easy driving when the tools are hitched far *off center.*

When men have spent 34 years studying orchard and vineyard machinery needs, they can build the best tractor for such needs. Don't buy any tractor until you know in detail the kind of tractor these men have made.

Send the coupon now before you forget it, and get this *free book* by next mail.

Special Bean TrackPULL Improvements for 1919 made in Motor, Track Rollers, Drive Sprocket, Bearings and Rear Wheels. They add great reliability to the other features of the Bean

Bean Spray Pump Co., 2 W. Julian St., San Jose, Cal.
131 N. Los Angeles St., Dept. Los Angeles, Cal.

Send me catalog and full information without obligation on my part.

Name .....

Street .....

City .....

County ..... State .....

No. of Acres ..... Kind of crops grown .....

Hooray!

IT'S not such a bad old world after all!

With the sickening spectre of Hun frightfulness forever banished from the earth and the "flu" conquered, with a happy Christmas approaching, and with the busiest and brightest new year our country has ever known looming ahead, we can now enter gladly and whole-heartedly upon the period of reconstruction. Orchard and Farm will take a big part in fighting for the proper recognition of American agriculture during the wonderful era upon which we are now entering.

More than ever before during 1919 you will want and need this big, live, wide-awake, useful farm magazine. We shall strive to make it even more helpful, inspirational and interesting than it has been in the past. We have already arranged for a number of articles by big, successful men, leaders in their lines. Any one of these articles will be worth the ridiculously small price of the magazine. But in addition, there will be hundreds of practical suggestions, useful hints, ideas that have made money for others and can be used to increase your profits. There will be reports of successful, new crops; accounts of interesting experiments; articles upon every branch of agriculture which will tell not only WHAT, but WHY, WHEN, WHO, WHERE AND HOW.

The other day, in the course of a call upon one of California's biggest nurserymen, the editor had the pleasure of being informed that Orchard and Farm was considered at that establishment the most practical, most attractive, and best farm paper in the West! Such generous praise was especially gratifying because the one who gave it backed up his judgment by selecting Orchard and Farm as his principal medium for advertising. This selection was based upon conclusions reached through years of advertising experience, covering the employment of all the western farm journals. The big advertisers base their campaigns upon proven results; that is why nearly all of the national advertisers include Orchard and Farm in their budgets.

A FRIENDLY ARGUMENT

The Orchard and Farm office is in the midst of a friendly argument. Mr. Tyler Smith, our manager, as I told you once before, lives, thinks, dreams (and I was going to say) eats ads. As proof that the world revolves around advertising he says that it is the ads which make Orchard and Farm possible, and in fact "buy the pencil-pushers' meal tickets." To which we of the editorial department retort that without reading matter we would have no subscribers and without circulation we would have no ads. Now we will leave it to our readers as to who should buy the dinner! Be that as it may, we are all working together not only to keep Orchard and Farm in the proud commanding position it has always held as The Great Western Farm Magazine, but to make each issue better in every way than the preceding one. We want your suggestions and ideas! Please feel free always to write to

The Editor.

Raising Broomcorn

(Continued From Page 6)

ber of holes needed will depend upon the speed adjustment of the planter. The holes should be slightly countersunk on the under side so that the seed will not become wedged.

Cultivation and Irrigation

Cultivation is especially important in California, where so much depends upon the maintenance of soil-moisture. Mr. Newbill hand-hoed his crop once, in addition to giving it two cultivations. It is good practice to harrow the field both ways with the harrow teeth slanted backward, just after the plants have come up. This gives them a good start and also thins them out a little. Provided the soil is moist at planting time, and a good mulch is maintained by frequent cultivation, it is not necessary to supply a large quantity of water until just as the heads begin to form. Weeds must be kept out, especially just as the plants are coming up, at which time they are easily choked out.

When to Harvest

Upon the care and judgment used in harvesting, storing and seeding the crop depends largely the price it will command. Broom manufacturers agree that while the domestic crop this year was large, the quality was poor. Consequently there is a wide spread of prices, and a very strong demand for the good corn. The grower who produces the best can always be sure of a quick, high market. Good broom corn is that which is "self-working"; that is, about 14 to 20 inches in length, tough (not brittle), yet fine, straight, and evenly colored. Harvesting too late, undue exposure to sun or rain, improper storage, careless threshing—these are some of the incorrect practices which reduce the value of the straw.

The proper time to harvest broom corn is while the seed is just turning from the milk to the dough stage. If it is allowed to become hard and red, the brush is colored brown or red and becomes brittle. It is necessary to cut the heads from the Standard

(Continued on Page 23)

NO MORE PUNCTURES OR BLOWOUTS

Perfect Tire Filler Takes Place of Air—Sent for Free Trial to Car Owners.

Car owners can get immediate relief from punctures and blowouts and from the delay, danger and expense of air-filled tires by writing to J. A. Jonson, Sales Mgr., 55-220 W. Superior St., Chicago.

Mr. Jonson's company manufactures a tire filler (not a liquid) that is in successful use on over 50,000 cars. This solid resilient filler rides like air yet does not puncture or blowout, doubles the life of tires and does away with the use of inner tubes. No spare tires or rims are needed.

Tests made by the Ford Owners' Club, Widney Resilometer, Technical Universities and over 50,000 users prove that this remarkable tire filler rides like air over the roughest roads, that it will not flatten and that it is not affected by heat, cold, water, sand, mud or pressure.

Various departments of the Government, municipalities like Cleveland, Chicago and 50,000 others are using this filler with remarkable success.

Mr. Jonson's free advertising offer is intended for one car owner in each locality, who will test this tire filler at the manufacturer's risk, and then tell others of its wonderful merits. It is suggested that car owners write Mr. J. A. Jonson, Sales Manager, at the address above for details of his offer—Adv.

How to Breed Rabbits

By Mrs. C. A. Richey
616 North Benton Way, Los Angeles.

Careful selection and mating of breeding stock is no less the duty of the utility breeder than of the fancier. Mrs. Richey describes in this article the standards of two leading breeds and answers in a non-technical manner the questions that will occur to the novice.—The Editor.

BREEDING animals or birds correctly, or rather scientifically, requires some study and care so as to improve the progeny with each generation; this is how we secure our fine poultry, horses and cattle. The same principles pertain to the rabbit family, and although we have made wonderful strides in America in the short time that we have been interested in domestic rabbits, we have only just begun; in a few years from now there will be a wonderful difference. Aside from the meat and fur question is the satisfaction to be derived from producing individuals of the selected breed that excel in size, shape and color.

It is just as easy to breed correctly as it is to use careless methods. By employing a little common sense and care, one is well repaid for his time and trouble, not only financially, but in the gratification of one's vanity, for to win in the shows is a great satisfaction. And this is not a minor consideration, for we need something to stimulate us to improvement and the rabbit shows, now held all over the country in conjunction with poultry exhibitions, furnish this stimulation. The rabbit industry will never hurt the poultry business as we must have eggs and poultry anyway.

It has been demonstrated in European countries that there is no lessening of poultry raising on account of the popularity of the rabbit, and so it will be in this country; as the population increases so will the consumption of all foods, and that the rabbit is a boon to the average household as a provider of meat is an established fact. Now that the domestic rabbit has become so firmly established as a meat producer, the sporting spirit of the intelligent American has been aroused to produce animals which please the eye as well as the palate, and we have what we call "breeders of the fancy types," who are willing to sacrifice both time and money to the furtherance of this interesting work.

Breeding New Zealand Reds

The New Zealand Reds breed true in color in every case; that is one of the reasons for their popularity all over America, but with careful mating we have produced a far more handsome rabbit than we had six or seven years ago. We find them inclined to show light color and some white spots as well as dark "ticking" on the ears and on the back. Whether this has been bred into them from other rabbits in order to add size, we have not been able to determine.

Animals of fine color and type are almost always of less than standard weight; for New Zealands the standard calls for 10 pound does and nine pound bucks. They should weigh four and one-half pounds at four months, six pounds at five months, eight pounds at eight months, and ten pounds at twelve months. When these weights are easily reached, the standard will be raised accordingly. The average weight of a fine colored New Zealand is from eight to nine pounds, and it is the aim of the fancier to bring the weights up to standard or higher, perfect color predominating.

In breeding we must remember to choose the buck for color and the doe for size. We must pay particular attention to the ears, which should be of medium thickness and should stand up gracefully from the head; they should not spread out, as is so often the case. There should be no "lacing," and the standard calls for a length of five and a half inches from the skull.

The body should be rather long and very broad at the hips; feet clean, with no white bars, and with thickness according to the body. An animal in first-class condition will carry its head in a graceful position, well up, and the eyes will be bright and alert. Does, when nearing the age for breeding, have a dewlap which should be evenly carried, not baggy. Bucks should be very lively and pugnacious. In mating the rabbits, a fault on one side should be perfect on the other; for instance, a doe with ears too short should be mated with a buck with perfect ears and vice versa. If one is breeding for size a doe should not have more than four young to nurse; the remainder may be given to a nurse doe. Thus the four young get all the nourishment that would naturally have to be divided among

(Continued on Page 34)

The Steel Grey Flemish
An Unusual Specimen, Carefully Bred for Color and Size.

This Label On Every Garment HANES Buy None Without It

Unusual warmth, comfort and economy!

Cut out winter underwear frills and *save a lot on the price you usually pay!* Put it flush up to Hanes quality, Hanes workmanship, and Hanes fleecy warmth to carry you through the stiffest winter with maximum comfort! *And it will!* Hanes Heavy Winter Weight Underwear—Union Suits and Shirts and Drawers—is value extraordinary! Made of fine, long-fibre cotton, it will win you hands down after the closest inspection.

Every Hanes seam is guaranteed unbreakable. Every pearl button is sewed to stay on! Tailored Collarette fits the neck snugly, preventing gaps. Elastic shoulders hold their shape and give with every motion.

GUARANTEE—*We guarantee Hanes Underwear absolutely—every thread, stitch and button. We guarantee to return your money or give you a new garment if any seam breaks.*

Union Suits HANES Shirts and Drawers
ELASTIC KNIT UNDERWEAR

Illustrated here is the Hanes Heavy Winter Weight Union Suit, the highest type of underwear ever sold at popular prices. Note the snug-fitting elastic wrist and leg cuffs. *Closed crotch stays closed!* Hanes Heavy Winter Weight Shirts and Drawers are the standard of the nation sold at a popular price.

Keep the Boys Warm

Hanes Union Suits for boys are actually the men's suits in boy sizes! In friendly warmth, comfort-fit and long service they are in a class by themselves—the finest boys' union suits we have ever seen. If your dealer does not have Hanes *write us at once.*

P. H. HANES KNITTING CO.
Winston-Salem, N.C.

New York Office: 366 Broadway

Warning to the Trade—*Any garment offered as Hanes is a substitute unless it bears the "Hanes" label.*

HANES
Greatest Winter Underwear Sold at Popular Prices

Ranchers, Attention! WHILE IT LASTS

100,000 feet choice, bright, second-hand galvanized corrugated iron, all lengths.
3,000,000 feet dry dimension lumber, all dimensions.
Greatest stock of new and second-hand plumbing; more than all others combined; must be seen to be appreciated. Lateat designs at reasonable prices. Building material for every purpose. Ranch accessories, such as nails, barb wire, hog and poultry fencing.
Get our estimates. Several buildings now coming down. Every shipment, large or small, guaranteed. Play safe and buy right.

SYMON BROS.
WRECKERS
1501 TO 1527 MARKET STREET, SAN FRANCISCO.

SPECIAL SALE
Ground Coffee and Cereal, fresh roasted, the finest kind, **5 Lbs. for $1.00.**
Fancy Broken Ceylon and Java Tea, 3 Lbs. for $1.00.
We positively guarantee every pound. Try it at our expense.
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Use ANTI-URIC, the famous ROOT and BERRY remedy for the cure of RHEUMATISM, catarrh of the stomach and the purifying of the blood; will assist the kidneys; has cured thousands. Contains no opiates or chemicals, and the most delicate stomach can take it. An outfit (two weeks' treatment) contains an 8-ounce bottle of liquid, a box of tablets for internal use and a 1-ounce bottle of oil especially prepared for MASSAGING the parts affected. Results guaranteed or money refunded. Price, $1.50 per outfit. If not at your local druggist we will send prepaid by Parcel Post, C. O. D. Write today.
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HELPS SOLVE FARM LABOR PROBLEMS

To produce greatly increased yields of all farm products in spite of the scarcity of labor—that is the problem squarely confronting the farmers of America, for America must feed the *world* for years to come.

For years The Holt Manufacturing Company has been building and improving the "Caterpillar" Tractor, which now, more than ever before, is proving itself a most important factor in the saving of farm labor.

Today the wide expanses of America's fertile acres are being cultivated with the aid of thousands of "Caterpillar" Tractors. Thousands more of these tractors are hauling supplies and cannon in France.

The track principle employed in the "Caterpillar" Tractor, plus Holt manufacturing experience, Holt design and Holt high-grade materials, produces the most efficient, dependable and profitable tractor made.

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The room made cheery and comfortable by the glowing warmth of Perfection Oil Heater. Lights at the touch of a match. No troublesome fires to bother with. No dust, no dirt, no ashes.
Gives steady, comfortable warmth for many hours on one filling with Pearl Oil, the ever-obtainable fuel. No smoke or odor. Portable. Economical.

Buy Perfection Oil Heater today. Dealers everywhere.

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PERFECTION OIL HEATER

Tractor Parts

ONE of the first things the farmer considers in buying an ordinary piece of farm machinery is the possibility of getting "extras." This is painful and expensive enough at best under present conditions, but all the more important because of the certainty of delay and additional expense, as compared to normal times.

So spectacular and rapid has been the general adoption of the farm tractor, however, that heretofore the important consideration has been merely to get a machine and to get it as soon as possible; consequently, little thought has been given to the matter of securing parts when needed. As a result there has been a great deal of delay and dissatisfaction. For the tractor is, after all, only a piece of machinery, susceptible to breakage and disorder. The farmer who purchases a tractor hurriedly without regard to his future supply of "extras" may be laying the foundation for serious loss. When the time comes to replace an important part, if it is necessary to wire an over-worked factory several thousand miles away, there is certain to be disappointment.

Therefore it is our belief and contention that every tractor dealer should carry a supply of parts, and that the farmer should base his purchase largely upon the possibility of future service. The time is coming when there will be no room on this globe for the "shyster" dealer who sells as many machines in a territory as possible, and immediately forgets about the purchasers as soon as he has their money, moving to some other fertile field for his next year's operations. Tractors are more plentiful now; competition is keener. The questionable practices that have prevailed among a few dealers in some communities are no longer being tolerated. The dealer who is building up a permanent trade wisely gives every consideration to the "service" branch of his business.

When Trouble Occurs

"Don't growl; kick," is the advice of one successful tractor dealer. He regards as his best friend the owner who, instead of grumbling, and parading dissatisfaction among his neighbors, writes or tells fully and in detail the circumstances and causes of his particular difficulties. The man who suggests a "kick" is somewhat out of the ordinary and it is interesting to follow up his reasoning. He believes the "kick" should be definite, not simply a process of "getting mad" and saying that something is wrong. The world appreciates and hustles for the good, hard legitimate kicker, he points out, and shuns the "growler." The wise dealer is the one who gives quick action on such well-directed and justified kicks.

Tractor Precautions

To overload a tractor or run it beyond its rated speed is regarded by tractor authorities as one of the most short-sighted policies the purchaser could adopt. To treat a tractor in this manner is to subject it to strains which the manufacturer never intended it to endure, and therefore to open the way for dissatisfaction for which he is in no way to blame. A good rule to follow is this: Think of the tractor as though it were alive, and treat it with the same humane consideration that you would give a horse.—W. J. B.

The Tractor Era

There are two items in the growing of crops which keep the thoughtful farmer awake nights. One item is represented by the cost of seed and rental, or interest on the land. This item is more or less fixed and unchangeable in its nature. The other is the cost of hired help and horse help in planting, cultivating and reaping.

This horse and hand item is one of large proportions. The army of horses and mules which is required to do the farm work of this country consumes annually a food product valued at $1,250,000,000 or a sum equal to the total income of 2,000,000 families. This represents one-fifth of our entire production of hay and grain. Hired help, even if not overpaid, is too expensive in comparison to what it produces. Illinois farmers paid out for hired help in the year 1909 more than $36,300,000. Three fourths of this sum was in cash and the remainder was paid in rent and board. This was an increase over the preceding decade of nearly 64 per cent. During that decade, the sum which Michigan paid to its farm hands increased even more rapidly, the added increase amounting to practically 75 per cent. Ohio was even harder hit with a 77 per cent increase in its payroll.

These are the items of expense which are becoming a matter of anxiety to every progressive farmer. The American farmer cannot hope to retain his agricultural supremacy after the war in competition with European farmers who are now rapidly learning the use of labor-saving machines unless he can find some way of making a further reduction in the labor costs of producing his crops. It is his liberal use of machinery and tractors which enables him to hold his present leadership in the world's production of foodstuffs.—N. I. V. A.

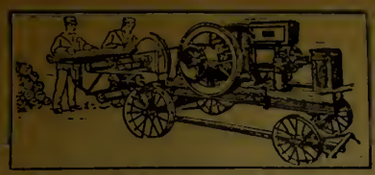
Time to Buy a Tractor

To Orchard and Farm:

I want a tractor to do field work next spring, and am urged to buy it this fall, but have thought that new models might come out in the meantime and would not like to have an out-of-date machine on my hands. What do you advise?—R. J. V., Santa Barbara.

One of the big tractor manufacturers says: "Always buy a tractor for spring work in the fall, and one for fall work in the spring." He gives as his reason the fact that the farmer who buys several months ahead has an opportunity to "get acquainted" with his machine, and have it well broken in before it is necessary to commence heavy work. If you have some belt or field work for the machine to do this winter, we believe that it would be advisable to get the tractor now, provided you have satisfied yourself as to the make and size you want. There is little likelihood that sweeping or radical changes in design will be made in a few months; in fact, there has been little change in most of the standard makes of tractors in the past two years. We do not believe this consideration should deter you from making your purchase. We question the advisability, however, of leaving a machine in "cold storage" all winter, without working it, unless you anticipate inability on the part of the dealer to make delivery next spring.

Beware of the dealer who draws a rosy picture of years of tractor usage without any trouble. The tractor is not made which will not give some trouble and develop difficulties calling for adjustment or repair. The dealer who paints too bright a picture is open to suspicion!



The Farm Engine

Overhauling and Care

IN a speech delivered recently before a meeting of farmers, W. Champlin Robinson, director of Oil Conservation of the United States Fuel Administration, told a story about a farmer who gave all his horses to Uncle Sam for war work and installed gasoline equipment. "I find," said the farmer, "that to get the best results I have to be as kind to my motors as I was to my horses. Gasoline horses have to be fed, groomed and bedded or else they'll go lame. A man who keeps a lame motor on his place is just as bad as the man who works a lame horse."

With the approach of winter, careful farmers are turning their attention to the farm machinery, and there is no item of equipment that demands as much attention as the gasoline motors. A new motor, which has been running all summer, requires particular attention because the "shaking down" which comes with the first year's service is generally the most telling in the life of the motor. Unless it is kept in proper adjustment after the first year's use it will lose from one-half to one-third of its power.

Saves Fuel

The adjustment of stationary gasoline motors is frequently as necessary as the adjustment of automobile engines. Carbon should be removed, spark plugs kept clean and carbureters adjusted often in order to keep the gasoline consumption at a minimum. It must be admitted that many operators permit their machinery to run under conditions that would not be tolerated in the use of the family automobile or the motor truck. If the motor is taken down and thoroughly cleaned and wornout parts are replaced, the average user will find to his surprise that he will save 50 per cent on his fuel and oil bills.

Here are some points to observe in the overhauling program:

Clean carbon from cylinders and plugs. Accumulated carbon is a fuel and power waster, besides the extra wear and tear on the motor.

Watch piston rings. See that they fit snugly. Badly fitting piston rings are responsible for loss of power and the waste of gasoline and oil.

Go over wiring system with special attention to timer and ignition.

Watch the Smoke

Adjust the carburetor. During cold weather a rich mixture is needed for starting but after the motor "warms up" it will give more power if the mixture is made leaner. Observation of the exhaust will enable the operator to determine whether or not he is wasting fuel. A smoking exhaust indicates the engine is wasting gasoline or oil or both. A sharp, snappy explosion from the exhaust without smoke indicates that good service is being obtained.

Don't fill oil cups while motor is running because it frequently causes spilling. Every drop of oil saved counts.

When cleaning crank case, don't throw away the oil. Strain it carefully and put it back in the crankcase. Oil cans and containers should be kept tightly covered to prevent the entrance of dirt and in the case of gasoline to prevent evaporation. An open container attracts dirt, insects and trash with the result that there is great waste in using the last few gallons.

WALLIS

America's Foremost Tractor

THE perfection of the Wallis principle in tractor construction established a new standard of tractor quality.

Wallis was the first to use a rear axle gear drive—entirely enclosed. Wallis built a powerful four-cylinder engine of latest tractor type, and drop forged, cut and hardened steel gears. Wallis enclosed all gears and moving parts in a light but durable steel armor where they run in a bath of oil. Lowest plowing cost per acre is a Wallis accomplishment. This is economy which plays an important part in the final estimate of your farm profits.

Why the Wallis principle is the accepted standard of engineering excellence and operating economy is explained and illustrated in the new Wallis catalog. A copy will be mailed upon request.

J. I. CASE PLOW WORKS, Racine, Wis.

512 Mead St.

Sales Agents for Wallis Tractors.

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Cabbage Cutter with 6 Knives

that always keep sharp. Slices cabbage and all other vegetables easily and rapidly. Sent prepaid for $1.60. 3 for $2.00. LUSHER BROS., Elkhart, Ind.

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Common Variety, 21c per lb.
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Delay Buying Until You Have Compared My Samples With Seed Others Offer.

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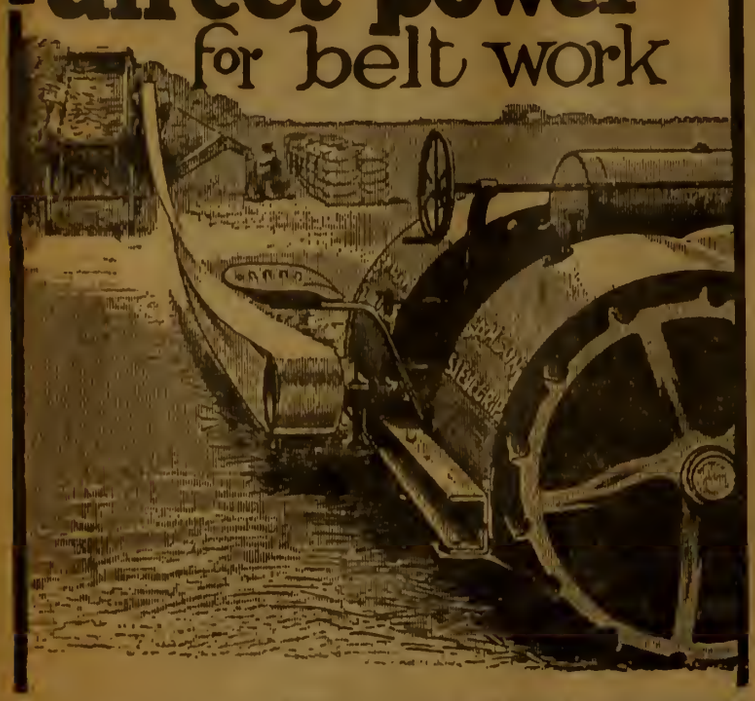

For years, the GMC SAMSON SIEVE-GRIP TRACTOR has demonstrated its effectiveness for doing stationary work.

Maximum power is obtained at its pulley, directly connected with the motor shaft.

Undeviating set speed is secured by its automatic control regardless of load, to the tractor's maximum capacity.

The GMC SAMSON SIEVE-GRIP TRACTOR will perform all your stationary work cheaper and better than any other power. It will drive your grain separators, run your bean threshers, operate your ensilage cutters and blowers, pump your water, CUT YOUR COSTS and INCREASE YOUR INCOME.

The GMC SAMSON SIEVE-GRIP TRACTOR is the man-of-all-work on the farm.

Write for our latest catalog, Better Farming. It is yours for the asking.

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Division of
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A VALUABLE BOOK OF INSTRUCTION TO THE BEGINNER AS WELL AS THE EXPERIENCED HORTICULTURIST.

Making a right start—preparation of the soil—time to plant—selecting proper varieties—irrigation—pruning and shaping, are all treated at length in this valuable book, which is sent Free on request.

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702 Holland Building

Fresno, Calif.

Hints for the Handy Man

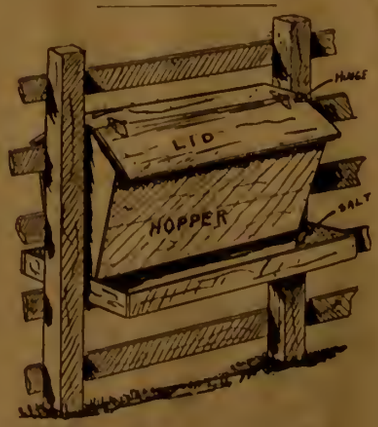
System in Shop, Office and Field

Filing Bulletins

IN connection with the article on "A Simple Filing System" which appeared in our October issue, attention is called to the free pamphlet issued by the U. S. Department of Agriculture, entitled "Key to Subject Index of Experiment Station Literature," which explains a simple method of indexing all literature published in the form of bulletins and circulars. This system is based on the decimal figures, frequently used in libraries. There are 13 master divisions, each of which is divided into two or more subdivisions, some of these subdivisions are, in turn, divided into several heads.

The subdivisions of the master divisions are indicated by tenths and the smallest divisions by hundredths. For example, a master head is No. 9, "Dairying." Subhead No. 3, under 9, is "Changes in Milk"; one of the minor divisions under this subhead is .02, "Creaming of Milk." Thus in indexing a circular on "Creaming of Milk," one would write the figures thus 9.32, which would tell at a glance where to look for the information desired.

Anyone who keeps bulletins for reference will find this circular of assistance, although scarcely any student, of course, will save bulletins on every subject. Any filing system must be worked out to suit the subjects in which the student is interested. That it pays to keep valuable information indexed, no one can deny. It is easy to get the habit, when about to undertake some work or project about the ranch, of looking up the night before the information on that subject which is on hand. Frequently a forgotten suggestion or a time and money saving method will be brought to light. At any rate, the fortunate owner of carefully indexed information will be continually "brushing up" on all branches of the work as it comes along, which as everyone knows, is the best way to acquire knowledge that will "stay with him." Mere words, unaccompanied by practice or demonstration, are easily forgotten.—Albert J. Mason.



This "Dual-Purpose" Box

Is handy for salting animals in two separate lots. It is patterned after the larger self-feeders. The top should open on the side most convenient for filling, and should project over the hopper to shed rain. The combination of salt and moisture will soon rust out ordinary wire nails, and the box should be put together with galvanized nails if possible.

To remove the top from a "stubborn" Mason jar, place a rubber ring or a heavy rubber band around the top for a grip. This will not slip and the top may usually be easily turned.

Self-Feeder for Calves

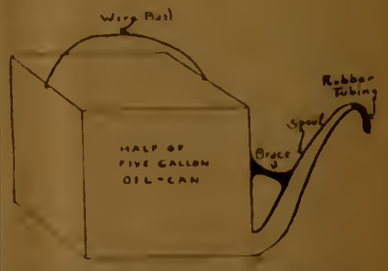
To Orchard and Farm

I submit herewith my method of feeding calves. I have found it practical and economical.

Some years ago I had as many as eleven of them in one pen and found it nearly impossible to feed them all at one time and do it right, without tying them up.

I took six empty kerosene cans to a tinsmith, and had them cut off in the middle, so as to make two feed cans out of each. Then I had him make for each can a spout which was fastened at one corner of the can so that the contents would drain out well when the can was tipped to that corner.

The spout was set slanting upward, to a level with the brim of the can so that the can could be filled without the contents running out. A brace from the middle of the spout to the can helped to stiffen it and hold it in place. The sharp edges of each can were turned over and hammered smooth, a wire bail put in and the job was finished.



Then I got about four inches of rubber tubing to put on the end of each spout, for the calves to suck, and the cans were ready for use.

Now, on the outside of the calf pen I made a shelf on which to set the feeders, and bored holes in the side of the pen for the spouts at a convenient height for the calves to get hold of them. The shelf was tipped toward the pen so that the contents of the cans would drain to the spouts.

To teach the calves to drink out of these spouts was a very simple matter. Calves naturally look for something to suck and when one or two were held until they took hold of the tubes, the others soon found a spout each, and the thing was done. After that the feeding was done from the outside of the pen.

The cost of each feeder was about 30c, including the rubber tubing, and with a little care and attention to leaks that may develop, the cans will last long enough to serve for two sets of calves.

Besides simplifying the feeding, this device keeps the calves from sucking one another's ears. I raised every one of the eleven calves, and on skim milk and cornmeal gruel at that. The tubing will wear out and have to be renewed, but an old piece of hose or even a piece of bagging can answer, temporarily. The rubber tubing, however, is easiest to keep clean.

For one or two calves only, a bottle or a teapot will answer, until the calves learn to drink out of the bucket, but for a number of calves kept together, I have found nothing to equal these feed cans with spouts.—J. E. Gamalielson, Hilo, Hawaii.

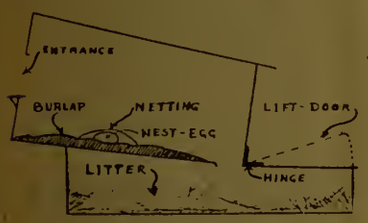
A sickly chick or adult allowed to run with the flock, a dead chick or fowl not buried or burned promptly, sour feed in the houses or yards, lice and mites as well as drafts and dampness must be guarded against and combated as insidious enemies.

See Hubbard the Land Man's adv. on page 21.

Curing Egg-Eaters

Almost every poultry raiser has had experience with egg-eating hens. They usually go from bad to worse and are frequently killed as incurable. Good effects may usually be noticed, if one commences in time, from a little extra care in feeding. The eating of eggs is undoubtedly due to a depraved appetite or a craving for certain kinds of feed, which if supplied, will cure the desire and the habit. If a hen has just commenced to eat eggs, it is well to feed some ground bone, meat scraps, oyster shell and other mineral and protein feeds.

If this is not effective, however, it is not necessary to kill the hen. Mr. Gamalielsen, who describes elsewhere in this issue, his device for feeding calves, has worked out an ingenious method of saving the eggs. His plan is submitted for the benefit of other readers of Orchard and Farm.



"Here is an account," he writes, "of the way I cured some of my hens of eating eggs. They had the habit so badly that they ate every egg they layed and I was on the verge of killing them when I had an idea. I cut a hole in one corner of the nest box, big enough to let an egg roll through and tipped the nest box to that corner so the eggs would roll out down into another box below. I partly filled this box with shavings so the eggs would not break in rolling down and closed it in so no hen could reach into it. This lower box was also tipped so that the eggs would roll away from the opening and make room for others.

"A piece of bagging was tacked in the inside of the nestbox, instead of litter, and a piece of netting was tacked across one corner, under which the nestegg was placed.

"This plan worked out so well that not a single egg has been eaten since. Usually after a week's use of this nest, the habit is forgotten."

Stalls for Machinery

A southwestern ranch owner has his machinery shed divided into "stalls" each of which is numbered. Corresponding numbers are painted upon the various pieces of farm machinery, and even new hands never have any difficulty in putting each implement back in its proper place. Moreover, the psychological effect of the numbers seems to be strong, for they are constant reminders to the men that the tools have "homes" to which they are to be returned. Considerable improvement has been noted in the care given the farm machinery, and losses by exposure consequently have been reduced.

Although the feeding value of cornstalks is generally believed to be very small, recent Illinois experiments show that cornstover, if made into silage, may be fed with oil meal at about one-third the cost of maintenance with normal corn silage. It has been shown that dry corn stalks, if sufficiently moistened with water when put into the silo, make a good succulent feed.

Bulk Handling Costs Less

A big flour and milling concern recently made a 2500-ton shipment of sacked grain from Vallejo to Stockton.

16 tons of this grain were lost through torn sacks, rats, gophers and mould.

They handled the next 2500-ton shipment in bulk—

—and lost just *half a ton.*

Grain men who *know* say that 25%, or ¼, of all the grain grown in California is lost because of the sack method of handling.

Handle your grain in bulk and store it in a Calco Metal Grain Bin. Cut out the loss through rats, gophers and leakage—save the cost of sacks and the sack sewer's wages—assure yourself the *full* profit of your crop.

Calco Metal Grain Bins are made of "Armco" rust-resisting iron—fireproof—weather-proof—rat-proof. Can be quickly set up with unskilled labor. Write for booklet.

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Statistics of the production of seedless raisin grapes in California and the world at large; descriptions of various types of raisins with their uses, preferred soils, climates and locations; records of varying crops, both grafted and ungrafted, for a series of years; and estimates of the cost of establishing and maintaining vineyards are set forth in a circular issued by the College of Agriculture at Berkeley. In addition, the bulletin deals with special requirements regarding planting, laying out the vineyard, and the use of resistant stocks.

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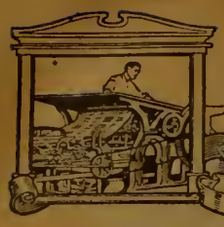
State Farms for Settlers

Thirty-one Farms and five Farm Laborer's Allotments in the State Land Settlement at Durham are now open to the inspection of intending settlers. Applications will be received up to noon November 20, 1918. For particulars regarding prices, terms of payment, address George C. Kreutzer, Superintendent, Durham, California.

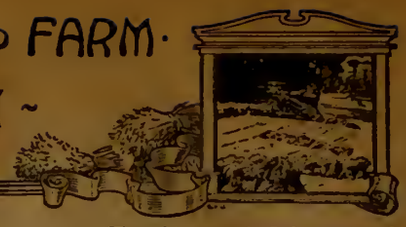
5 Cents an Acre Cash

Texas school lands for sale by the State at $8 an acre, 5c an acre cash, and no more for 40 years, bear 3 per cent interest; send 6c postage for further information.
INVESTOR PUB. CO., Dept. I, San Antonio, Texas.



EDITORIAL DEPARTMENT OF ORCHARD AND FARM

~ TIMELY TOPICS AMONG FARM FOLK ~



J.C.Knollin, Editor

Our Editorial Policy

Farmers First

ORCHARD AND FARM is a magazine of, by and for agricultural people; standing by the food producer in all things; looking at life from his point of view. We recognize the proud position held by you who make your living from the soil. Your interests are our interests; your problems our problems; your struggles, ours.

To publish only that which is clean, helpful, interesting; to make the pages of this magazine a clearing house for useful ideas; to assist and entertain every member of the family; to deserve and keep the good will and respect of its readers—that is the policy of Orchard and Farm.

Concerning Optimism

"SPEAKIN' of Crabs," remarked Uncle Wiseacre (the reference having been suggested by the arrival of a fresh shipment of sea food at Jud Whitson's store, where the old philosopher was having his usual Saturday afternoon chat)—"Speakin' of crabs, I know a man who is so derned contrary thet he is agin what he is fer! When the signal comes to go ahead he has already started backing up. If he ever gits in the army, they will have to sound retreat t' get him t' charge th' enemy. He is jest naturally opposed; it don't matter what th' issue is, he is on th' other side of th' fence!

"Now what good does a feller like thet do fer himself, his family, his neighborhood er his country? He is th' best example of a dyed-in-the-wool pessimist thet I ever run across. Fer what is a pessimist but a man that can't see no good in nothin'? Did you ever think of it in that way, boys? As fer me, I believe a feller can do a lot more good boostin' than knockin', even if he gets off on the wrong track and boosts a losin' proposition occasionally. Like me, fer instance, I got mighty enthusiastic about votes fer women one time, and then found out my wife was an anti!

"The best description of the optimist and the pessimist thet I know of is the old rhyme that runs like this:

"'Twixt optimist and pessimist the difference is droll,
"The optimist the doughnut sees—the pessimist the hole.

"Joe Caruthers is about th' best example of an optimist in this neighborhood. Th' other day I sez to him: 'Joe, I sh'd think ye'd get discouraged workin' up an down th' hills on your farm. Your horses is generally six feet lower or eight feet higher than th' machine they is pullin'.' He says, 'Well, now that ain't so bad as ye might think, Uncle Wiseacre. Jest consider how much more land I have to raise crops on than the feller that has a place as flat as a pancake.' Yessir, Joe could find a bright side to a book agent's visit!"

The Dawn of a New and Brighter Day

"GREAT was the fall thereof" may well be written, in future agricultural history, of the year 1918. The historians will refer, of course, to the season and not to any catastrophe. For it is during the fall months of America's most momentous year that Rip-Van-Winkle-Agriculture at last stirred uneasily, dimly conscious of the great things which await him when he emerges, completely awake, from his long nap

In a world made safe for democracy he will find himself the only King. For a world that has faced the awful spectre of hunger can forget neither the prime importance of food, nor the deference due him who produces it.

EVENTS ARE MOVING WITH STARTLING RAPIDITY TOWARDS THE ASSENSION OF THE SOIL MONARCH TO HIS RIGHTFUL THRONE! His Temple of Agriculture at Washington, fostered by the now generally recognized National Board of Farm Organizations, awaits merely the conclusion of world peace in order to spring into being, for the movement to provide at the national capital a permanent shrine for American farmers has met with the heartiest response and approval from agriculturists in every section of the United States.

All kinds and sizes of producers' organizations have expressed their willingness and desire to contribute and co-operate. From the great Farmers' Union of the South to the smallest community club, the people of rural America are endorsing this as the greatest agricultural co-operative scheme in history.

The National Board is not at its inception and cannot become in the future partisan or selfish; it is greater than any of the men who sponsor and compose it; it is greater than the idea itself! The possibilities for development are unlimited. Think of a nation-wide league, representing in their entirety the food producers who comprise the backbone of the world's greatest democracy! Carried to a successful conclusion, the scheme will become one of the most progressive and revolutionary measures ever woven into the world's social and political fabric! AND WHERE IS THE FARMER WHO WILL LET IT FAIL? We trust that every reader of Orchard and Farm will investigate the possibilities of this first real, concerted movement to give the American food-producer a square deal!

The farmer is no profiteer! "A good living and ten per cent" is all he wants or asks. But until he puts his shoulder to the common wheel, no American farmer can be assured of a permanent, lasting partnership in the affairs of the nation! He must do his pioneer work through community, county and State co-operation and bring about the big reforms through national co-operation. The National Board was represented at its notable meeting last August by several hundred delegates from most of the recognized associations of farmers in the entire country! These sober, broad-minded men passed resolutions that will live in history, and when they returned to their respective communities they did not let the spirit of their gathering die.

IT WAS NO SMALL CLIQUE OR CLAN THAT GATHERED IN WASHINGTON; THE DELEGATES REPRESENTED ORGANIZATIONS COMPRISING NO LESS THAN 3,000,000 FARMERS.

It was a northwestern man, A. A. Elmore, president of the Washington and Northern Idaho Farmers' Union, who introduced the measure for constructing and maintaining a temple of agriculture.

It is proposed to raise among the six million farmers of the nation by voluntary, though systematic, subscription a fund of approximately $8,500,000 of which about $1,250,000 would be for the construction and equipment of the agricultural temple and the remaining $7,000,000 or more an endowment fund, the proceeds of which would be used principally to maintain the ablest possible representation of the agricultural industry constantly at the national capital to protect and foster the farmers' interests at all times.

Among the California men present at the meeting were S N. Ayers, Sacramento, secretary, Associated Dairymen of California; Jacob J. Hardie, Modesto, president, Farmers' Union of California; Dr. Elwood Mead, Berkeley, University of California professor and well known to our readers as a contributor to Orchard and Farm; G. A. Turner, Stockton, president California Bean Growers' Association, and Rev. C. R. Hudson of Pomona, visitor.

Any member of the Orchard and Farm family who is not familiar with the accomplishments and purposes of this great organization, which, although in its infancy, has already made notable strides, should either personally, or through some organization of which he is a member, address THE SECRETARY, NATIONAL BOARD OF FARM ORGANIZATIONS, GENERAL OFFICES, WOODWARD BUILDING, WASHINGTON, D. C., and ask for a copy of the "win-the-war-program" and other available information.

Perhaps the reader does not realize what the successful accomplishment of the objectives of this organization means to every American farmer; if not, a careful study of the subject will convince him of the necessity for immediate and unqualified support. There should be a Californian upon the executive committee! The National Board is going to live and grow, whether backed by Californians or not, but as the originators of successful co-operation on a large scale, the food producers of this great agricultural State whose soil products alone were valued in 1917 at $200,000,000 should be among the leaders at its inception.

THE OPPORTUNITY IS HERE. NO LONGER SHALL AMERICAN FARMERS BOW TO THE WILL OF BETTER ORGANIZED INDUSTRIES. IT IS THE DAWN!

Fruit and Livestock

THE peach pig and the citrus cow have arrived! They are not the product of a new "graft," nor do they get their names from the feeding of fruit to livestock. For, although the use as feed of such pleasant flavoring agents as oranges and lemons offers interesting possibilities when considered in terms of milk-shakes and other fancy drinks, we question the possibility of persuading any cow to co-operate in the experiment.

No, we refer merely to our old farm friends, the ever-fruitful family cow and squealing pig, so easily forgotten by the erstwhile corn belt farmer whose fortune they made, and who now consumes bottled dairy milk, and meat market spareribs upon his lately acquired California fruit ranch.

Have not these indispensable animals a place upon the orchard farms? The answer to this question is being worked out in Oregon in the present "Save-the-herd" campaign, which has as its object the encouragement of stock raising on a small scale in connection with specialized orcharding. A little fruit on the stock ranch is more common than a little stock on the fruit ranch. But should this be so? Why not the stockful fruit farm as well as the fruitful stock farm?

It seems to us that California might well emulate her neighbor-on-the-north by inaugurating a similar campaign. The advantages to be gained are manifold; the final and perhaps most important result would be to increase the fertility of our groves and orchards, which although annually bolstered up by heavy applications of commercial fertilizer, have disclosed during the past three years of fertilizer shortage conclusive evidence of alarming nitrate depletion, and general deterioration.

It is not that we do not recognize the value of specialization; upon this principle many of California's big industries have been built up. But specialization can be overdone, particularly in connection with agriculture. The man who has all his eggs in one basket is just about as liable to meet with disaster as the man who attempts to do too many things at once.

The fruit producer, who in addition to his specialty, has from one to 10 cows and a separator, not only possesses an additional source of income, but improves in the cheapest possible manner the fertility of his soil. The cover-crops now so universally grown in orchards afford a large amount of feed for cows. The separator makes it possible to save the skim milk, which in turn opens the way for some good hogs and chickens. If the original animals and fowls are purebreds, a very nice side-line may be built up in a short time. The production of food for home consumption is, moreover, one of the most important considerations. By all means, let us have both fruit and stock. They are a winning combination.

Sunflowers

The Foolish Farm Adviser

(Sayings of Solomon Smith)

A Pig Tale

"I wish you could tell me," said old Farmer Riggs,
"Just what is the matter with all of my pigs.
"A little each day they are losing their hair
"In a very short time they will all be quite bare!"

"A ha! I thought so," the Adviser replied
"A wonder it is that they haven't all died.
"You should use better care in the stock that you get;
"It's apparent their bristles weren't properly set.

"I'd suggest that you give them some rubber cement
"Just mix it with water; it's money well spent!
"If they live through this treatment, I think I can dare
"To predict that they'll never lose any more hair."

So the farmer applied the advice right away
And now he is happy and wealthy they say,
For the buyers learned quickly that old Farmer Riggs
Is the only known breeder of Rubberset pigs.

—Justin Nutt.

"There is two kinds of unsuccessful farmers," remarked Uncle Wiseacre. "One is the fellow who ain't quite quick enough and the other is the fellow who ain't quite slick enough."

Judge—"Where did the automobile hit you?"
Rastus—"Well, jedge, if I'd been carrying a license numbah, it would hab busted to a thousand pieces."

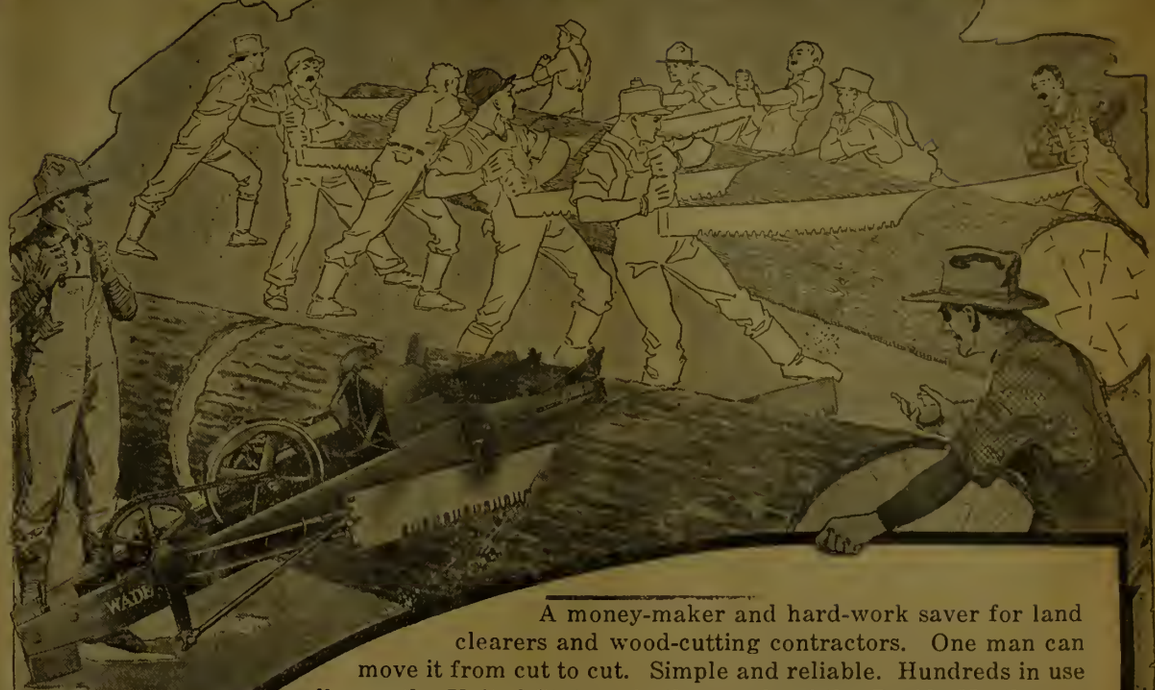
Great oaks from little acorns grow;
An argument begins a fight, you know.

Illustrated Market Item

Poultry is moving a little faster than fresh pork, but the demand seems to exceed the supply and the local trade is very active. If the poultry situation grows any weaker indications are that everything in sight will be gobbled up. Whether the holders of pork will be able to prevent a catastrophe is uncertain, but at present each factor in the situation is just about holding its own.

The best treatment for the influenza, as outlined by the eminent physician, Dr. Cutaman Chargem: Smith the head in eight thicknesses of gauze, which have been first sterilized by burning, and retire to the top of a high mountain, remote from human habitation. Spray the surrounding air three times daily with an antisepetic solution, eat only [illegible] and gargle every thirty minutes with vinegar, carbolic acid, formaldehyde, soft soap and nitro-glycerine. Smile happily and believe you are cured, as you will have it anyway and you may as well enjoy living while you can

The Mighty WADE Outsaws 10 Men!



A money-maker and hard-work saver for land clearers and wood-cutting contractors. One man can move it from cut to cut. Simple and reliable. Hundreds in use all over the United States—in the woods of the Pacific Northwest, California, Minnesota, Arkansas, New York. When not in use for wood cutting the 4-H. P. motor will run feed mills, feed cutters, pumps, etc.

Read What These Owners of Wade Drag Saws say:

One afternoon my brother-in-law and I took my WADE into the woods and sawed three hard maple trees into 16-inch blocks, the trees averaging about two and one-half feet at the stump. He expected it would take me from eight to ten hours to do the job, but it was all done in three hours.—F. W. Hiller, Vernon, N. Y.

I cut thirteen and one-half ricks of cottonwood in six hours.—J. W. Stratton, Atkins, Ark.

One gallon of gasoline will cut six to ten cords of wood; it depends on the kind of timber you cut.—W. D. Thomas, Bull Run, Ore.

My WADE saw paid for itself six times over.—F. W. Taylor, Swisshome, Ore.

I am making $250 a month with my WADE.—F. A. Stotts, Orville, Cal.

Thirty-six inches in diameter, yellow birch, is the largest I have cut, and I cut down to six inches.—P. L. Cole, West Duluth, Minn.

I cut down to eight inches in diameter.—F. T. Swank, Park Falls, Wis.

America must burn more wood for fuel. One Wade will do 10 men's work at one-tenth the cost. Write for free book, "How Dan Ross Cuts 40 Cords a Day." Full details and special price.

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Winter spraying cleans the trees of scale and moss—keeps the bark soft and healthy—and results in a bigger crop of better fruit. Every dollar you put into the work comes back and brings several dollars with it!

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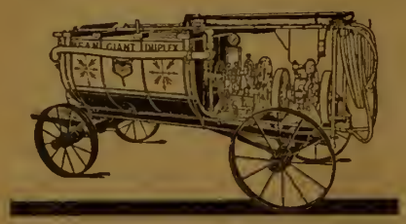
—A sprayer that is reliable—dependable—efficient—free from trouble.

That's the kind of a sprayer you get when you get a Bean.



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Milk and Beef; One Breed

By R. M. Doddington

Secretary American Milking Shorthorn Association

Orchard and Farm believes in increasing and improving the livestock upon the average farm. Probably no other breed or type of animal has attracted more attention in this connection than dual-purpose (milk and beef) cattle. A prominent breeder here outlines some of the strong points of the breed and tells why he believes the milking Shorthorn to be the best "farmer's cow."

THE milking Shorthorn is fast becoming the acknowledged "farmer's cow" in America as well as in England. More and more men with limited means are beginning to see the light in the buying of cattle. These are days of great demand for meat as well as for dairy products. Such men are looking for an animal that will fill both of these orders, and the milking Shorthorn is the only proven cow that can be properly described as a "dual purpose" animal.

Recent sales demonstrate the fact that this breed is gaining in popularity to such an extent that before long we shall be reading of these animals as not only topping the high-class pedigree auctions but out-stripping all other breeds in the market as beef cattle and producers of the highest dairy produce.

Make Quick Beef

Cows that can be made to weigh when dry from 1600 to 1800 pounds and produce from 40 to 60 pounds of milk per day are certainly of the type the small farmer wants on his farm in these days of high priced feedstuffs. A milking Shorthorn cow will raise a calf that he can make into a market topping steer, and by the time she finishes her milking period she will have fleshened up again to such an extent that the farmer can always be certain of his money's worth if he should feel inclined to dispose of her. It is not necessary for a man to tie this kind of a cow in a stall and cram feed into her in order to fatten her for market or to make a milk record; she is "there with the goods" at all times. I honestly think that no other breed of cattle can prosper on the average farm as can the dual Shorthorn.

Big Milk Records

Milk records of these cattle have been kept for years and some remarkable achievements have been recorded in the production of both milk and butter. I find that the average test of butter fat in most all the herds that have had official testing is 4.5 per cent; a few have done even better than this.

At the Vermont State Fair five years ago the milking Shorthorn animals out-stripped all other breeds in the milk and butter fat competition. These cows were all typical beef-producing animals, weighing well over 1600 pounds, with a smoothness of flesh that was surprising in cattle that were carrying such large udders. At the Massachusetts State Fair last year the long line of milking Shorthorn aged cows was really a sight for any lover of cattle. They had udders that a Jersey breeder might well be proud of, and it was remarked that in no other breed on the grounds could there be found two such "real cows" as this breed could show. Any one who visited the Illinois Centennial Exposition this year could not help admiring the wonderful showing; even the dairy-type breeders who do not believe in the dual-purpose animal, had a good word to say with regard to this wonderful showing of milking Shorthorns.

The Ideal Type

I shall now attempt to describe the type of cow which we are endeavoring to breed. She should be straight in her lines both on the top and underneath; should be wide and deep, especially in the back and hind quarters and should have well sprung ribs. It is no serious fault if she is less thick on the top of the shoulder blades than those animals bred for beef alone. Her shoulders should lie well into her back, and there must be no coarseness at the points. The flesh should be evenly laid on without patchiness about the rumps or hips and well set in. The head is an important feature; it should be effeminate, the eye

(Continued on Page 19)

Lady of the Glen

A Milking Shorthorn heifer that sold at auction for $5500, a record for the breed

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Wintering the Ewes

Many Orchard and Farm readers have had considerable experience with a farm flock of ewes, while many others are just embarking on a wool-growing venture. Upon the care given the ewes during the winter will depend largely the financial returns from the investment. An experienced flock owner offers the following suggestions:

Winter pasture will reduce the expense of feeding the flock and provide exercise which is so necessary for pregnant ewes. Pregnant ewes should travel the equivalent of a mile each day. When winter pasture is not available the ewes are often penned up too close, which results in reduced vigor of both ewe and lamb. Utilize cheap roughages, but have each ewe gain 15 to 25 pounds during pregnancy. Ewes weighing 120 to 150 pounds when in good thrifty condition can be wintered successfully on the daily ration of two pounds of good clover or alfalfa hay and two pounds of good corn stover or other available roughage until one month before lambing. Old thin ewes and younger growing ewes may need one-fourth to one-half pound of grain a head per day in addition. Feed about one-half pound of grain per head daily to all ewes during the last month of pregnancy. Good legume hay is needed especially at this time. A good grain mixture is shelled corn and whole oats, equal parts by weight.

Bone Meal for Cows

A Michigan dairyman feeds bone-meal, analyzing high in phosphorus and calcium, to his dairy cows in the same manner as salt. He attributes the good vitality and freedom from abortion of his herd largely to this practice, which, he believes, supplies the minerals frequently lacking in dry or prepared feeds. He stumbled upon this discovery through observing that his cows fared better when fed hay produced upon fields which had been heavily limed. He believes a supply of minerals to be essential for all farm animals.

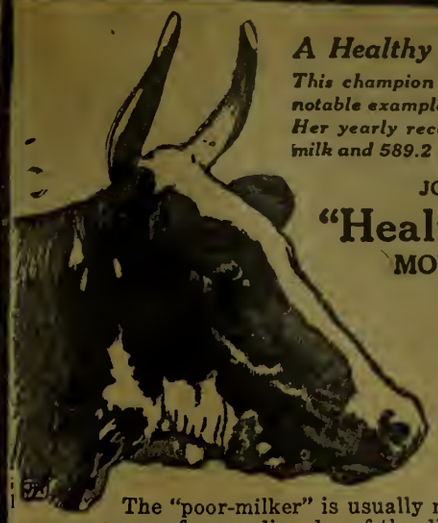
A Wise Precaution

Immature hogs go from the farms of origin mainly because of lack of feed or an account of disease. The purchaser who buys such sick hogs on the market for feeding purposes usually introduces disease into his home herd. Both for his own protection and to prevent the spread of hog cholera, the wise feeder insists upon vaccination by a conscientious operator, or handles only hogs known to have been immunized.

Milk and Beef; One Breed

(Continued From Page 18)

prominent and placid, the muzzle broad and clear in color, the horns not coarse and with a delicate curve. The skin should be soft and pliable, udder capacious and carried well up, beginning high between the thighs, and running well under the belly. When the cow has been milked out, or when she is dry, the udder should have a silky touch with an abundance of loose and thin skin The teats should be of fair length, set well apart and evenly placed; the escutcheon well defined and milk veins prominent with large milk-wells. Such a cow, when possessed of a "gay and stylish carriage," whether she be red, white, roan, or red and white, is to me of all animals the most fascinating.



A Healthy AYRSHIRE

This champion three-year-old is a notable example of perfect health. Her yearly record is 15,056 lbs. of milk and 589.2 lbs. of butterfat.

JOIN THE
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MOVEMENT

Present-day prices for dairy products are making dairymen everywhere think more about the milk production of their cows.

The "poor-milker" is usually non-productive because of some disorder of the digestive or genital organs that is sapping at her health and strength. Even apparently slight troubles of this nature usually lead to more serious ailments so common among dairy cows, such as Abortion, Retained Afterbirth, Barrenness, Scouring, Bunches, etc.

A sick cow should be treated like a sick person—with medicine that will correct the trouble. Kow-Kure is the most valuable and best known remedy for the prevention or treatment of cow ailments because its medicinal properties act on the organs where disease originates. Keep KOW-KURE on hand always. Druggists and feed dealers sell it, in 60c. and $1.20 packages.

Free Book, "THE HOME COW DOCTOR" is yours for the asking.

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Mr. L. C. Henry of Utica, Minn., purchased an International Motor Truck to haul his live stock and farm produce to market and to bring return loads from town. He says, "We use the truck for nearly every kind of hauling. It saves more time than any other machine in our farm service." Five of Mr. Henry's neighbors bought International Motor Trucks when they learned, from his experience, what a useful economical farm machine he had.

An International Motor Truck can be used both on the farm and on the road. It is a safe machine to buy, for over 15,000 are now in service. We have a dealer, a branch house or a service station somewhere near you. Write us for prices and complete information about all seven models.

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My Sweet Potato Venture

By Joseph W. Johnson

HOW many people have come to California in search of health, to find that not only health, but wealth and happiness awaited them with open arms? I sought the goal by the sweet potato route, and it was not with my mind filled with rosy dreams for in the beginning I took to farming with the one idea of regaining my strength after years of indoor work and a severe attack of typhoid fever in the East.

I did not make a fortune by my first venture, but it showed me interesting possibilities. I shall give the figures so that the reader may judge for himself as to the possible profits, perhaps by recounting my experiences and methods, I will assist other readers of Orchard and Farm, who might be interested in the production of "sweets." I had considerable experience with them in Southern Missouri, but found that, while the culture is somewhat similar everywhere, one must adapt himself to local conditions. In California, for example, irrigation is a prime essential.

Chose Right Variety

There are three ordinary varieties of sweet potatoes: The white variety, the red (or Yam), and the yellow Jersey. I chose the latter, as the one almost universally grown and offering the best market possibilities. I rented 10 acres of sandy loam soil, near Garden Grove, in Orange County, the owner including in the deal two mules, a young cow, a dozen chickens and one turkey. There were a small house and a barn on the place. Water was supplied by an 80-foot well, which delivered about 70 inches of water. I paid $12 an acre rent. I planted eight of the ten acres to sweet potatoes. The balance was devoted to garden truck.

I was unable to commence work until June first, which was rather late, as the potatoes should have been in early in May, so as to mature before frost and reach an earlier and better market. Moreover, had I planted in May, I could have had the crop off by the latter part of August or early in September and could have used the ground for another fall crop. As it was, however, I did very well.

I bought 80,000 sweet potato plants from a grower near Santa Ana, for $1 a thousand, pulled but not delivered. If I had not been so rushed, I could have bought these a little cheaper early in the season.

Preparing the Soil

It was necessary to check and soak the ground before it could be plowed. After plowing, I worked the soil down with disc and harrow and by throwing two furrows together, ridged up the prepared ground in wide beds. The furrows were 48 inches apart, which is wider than they are usually spaced, but I believe it pays to give each row plenty of room. Just before planting, I smoothed the "beds" with a plank.

By means of a sweet potato planter (of the barrel type, manned by a boy who drops the plants in the feeder) we set the plants 16 inches apart in the row. I tried hand planting on about half an acre and did not get good results; I believe that it pays to use a machine.

The plants must be set out as soon as possible after they are pulled. If held for a few hours, they should not be exposed to the hot sun, and should be kept moist. It is a good idea to put considerable earth with them and place them in rather shallow trays or boxes in a cellar or other cool place until used.

As soon as the plants were set, I irrigated. This irrigation was followed immediately by cultivation. Subsequently I irrigated regularly every two weeks until October, following each irrigation with thorough cultivation. Sweet potatoes need a great deal of water. I used a five-shovel cultivator, with the sections pushed together, so that it would go twice in each row. After cultivating, I ridged up again with a wing-plow for the next irrigation. In the meantime I had done considerable hand weeding. The weeds would spring up almost over night after irrigation.

The Harvest

Early in October, the crop being well matured, I turned out the potatoes with a 12 inch plow. By working carefully, and turning over each ridge entirely, we managed to harvest the tubers without cutting more than 25 pounds in the entire tract. Some of the potatoes reached an enormous size, measuring over 20 inches in length. While these few were not marketable for domestic use, they were readily sold for use in restaurants, being just as palatable as the smaller ones.

Part of the Sweet Potato Crop
The potatoes all attained a good size, some of the largest measuring over 20 inches in length. Even these big fellows were easily marketed

I consider it very good practice to plow the potatoes up in the morning and leave them in the dirt until evening. If they are gathered at once while the skins are tender, they are injured for marketing purposes. The observance of this precaution and that of leaving the spuds in the ground until entirely matured will greatly improve the keeping qualities. Sweet potatoes are generally supposed to be very perishable, but we kept some of ours in a cellar until the following June when they were still in good condition for eating!

The exposure to the air might be called "seasoning." It seems to toughen the skin. One pile that was left out in this manner was rained on. They dried off, however, and kept just as well as the others.

The Returns

The total yield was 15 tons. I averaged 2½ cents a pound for them, a good many having been frosted, because of the fact that I planted too late. Had I secured the same yield in time for an early market the crop would have brought at least $1200.

(Continued on Page 31)

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Ask your dealer for Mayer Shoes. Look for the trade-mark on the sole.

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The original chemical closet. More comfortable, healthful, convenient. The place of all outdoor toilets where germs breed. Be ready for the long, cold winter. Have a warm, sanitary, comfortable, odorless toilet right in the house anywhere you want it. Don't go out in the cold. A boon to invalids.

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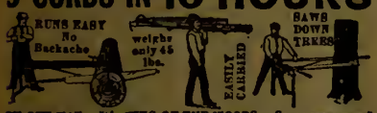

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A Home Cure Given by One Who Had It

In the spring of 1893 I was attacked by Muscular and Inflammatory Rheumatism. I suffered as only those who have it know, for over three years. I tried remedy after remedy, and doctor after doctor, but such relief as I received was only temporary. Finally, I found a remedy that cured me completely, and it has never returned. I have given it to a number who were terribly afflicted and even bedridden with Rheumatism, and it effected a cure in every case.

I want every sufferer from any form of rheumatic trouble to try this marvelous healing power. Don't send a cent, simply mail your name and address and I will send it free to try. After you have used it and it has proven itself to be that long-looked-for means of curing your Rheumatism, you may send the price of it, one dollar, but, understand, I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer when positive relief is thus offered you free? Don't delay. Write today.

Mark H. Jackson, No. 660D, Gurney Bldg., Syracuse, N. Y.

Mr. Jackson is responsible. Above statement true.—Pub.

Don't fail to mention Orchard and Farm when you answer advertisements. It is to your advantage as well as ours.

BAGS For All Purposes

Every bag thoroughly [illegible] before shipping. Bags for grain, potatoes, rice, onions, beans, etc. Whether buying or selling, communicate with us.

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Harrow Cultivation

In Apple Orchards

The spring-tooth and spike-tooth harrows are the best implements I have found for apple orchard cultivation. A plow injures the tree roots and cannot be used close to large trees, leaving more or less ground to be spaded by hand under the limbs—a back-breaking job. A disc is hard to guide, especially where an extension head is used to reach under the limbs. Both these implements ridge up the ground and leave gutters, which are apt to cause erosion on sloping ground.

We have determined that if an orchard has been properly cultivated the previous year, neither plowing nor discing will be necessary in the spring. A spring-tooth harrow will loosen the ground thoroughly if used before the soil has hardened. By following with a spike-tooth we break up the clods and pulverize the soil. We use care in cross harrowing in order to break up the ridges left between the teeth. It is necessary to go over the ground at least twice with each implement in order to attain the desired results.

If these first two harrowings have been properly done subsequent cultivation, provided it is done at the proper time, will be easy. The secret of success with harrow cultivation, we have learned, is to keep the ground loose by frequent workings. It should be stirred after every rain and sometimes oftener, if it becomes hardened or if the weeds start to grow.

By swinging in and out among the trees one can cover almost all the ground with harrows, even around large trees with low branches. Nothing is better than a harrow for maintaining a dust mulch to conserve moisture. The spring-tooth is especially fine for rocky, stumpy ground, as the teeth jump over all obstructions and loosen the dirt close to them.—O. H. B., Ashland, Oregon.

Good Old Wire!

A woman and a hairpin have solved many a mechanical difficulty. There is certainly only one thing that anywhere near approaches the hairpin for emergency repairs and that is baling wire. How could we farm without it? Careless help sometimes makes it more of a curse than a blessing by sowing it broadcast about the place, where every turning wheel will pick it up, but it must be admitted that baling wire properly cared for is one of the rancher's best friends.

Destroy Grasshopper Eggs

In localities where grasshoppers were numerous last summer plans should be made to destroy the eggs before the advent of spring, with its new crop of young "hoppers." Plow eggs under to a depth of at least 8 inches and keep down all vegetation. When the young grasshoppers appear in the spring, sow poison bait at once. —Horticultural Commission.

My Sweet Potato Venture

(Continued from Page 20)

As it was, the gross returns were about $750.

My expense was as follows:

Rent of 8 acres (at $12)	$ 96
Cost of irrigating (distillate)	35
Extra labor	50
Plants	80
	$261
Net returns	$489

My conclusion is that by proper management and the use of the land for a fall or winter crop or both, in addition to the "sweets," a similar venture could be made to pay a net return of at least $150 an acre, and possibly considerable more, depending upon market conditions and returns secured from the additional crops.

A Farm Becomes a Home When Drudgery Leaves

A farm becomes the ideal home when back-breaking tasks are eliminated. And tasks of this kind can be eliminated. Such chores as milking, churning, wood-sawing, water-pumping and feed-cutting may be handled with little manual labor and in quicker time if they are done electrically.

G-E Farm Motors

are giving this kind of service economically and satisfactorily. You will find that the nearest Central Station or G-E Motor Agency has complete information on motor costs, sizes required and operating charges. You will find experienced men ready and willing to offer suggestions on the best motor installation for your own particular needs. The service is freely given.

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BARGAIN NO.

1. Highly improved CHICKEN RANCH, Santa Cruz Co.; 400 Gravenstein apple trees, 150 cherry trees; soil black loam, deep and rich, no hardpan, no alkali; good buildings, five-room house, large barn and packing shed, chicken houses, water tank and windmill; water piped. A little gem for someone who wants six acres highly improved, near Santa Cruz, on State Highway, and only three miles out. Price very low.

5. Improved Patterson Irrigated Farm, where alfalfa grows; water supply abundant; a proven district; price low, with easy terms.

10. A Nile Garden Farm that will make you happy. We know because we sold 100 of them. Price right.

15. 50,000 acres in Nevada for stock ranch. We have the land. If you are interested, please write us and we will quote price.

21. 8000 acres in San Joaquin Valley. Thompson Seedless Grapes will make you rich on this land. A snap price gets this.

27. Eight-room House, with two lots, 26x140 feet; one block from Twenty third avenue car line, Oakland. A real home, located in a beautiful location, near churches, schools and car lines.

28. Six-room home in Mill Valley, with half acre of land, three minutes from electric car line to San Francisco. This place must be sold.

29. Four large lots on 39th avenue; 25x160 feet. Make a price and they are yours. Long time and easy terms.

30. Two large lots, with seven-room cottage at Mt. Hermon. Electric lights, water, bath and up-to-date camp home.

31. Thirty-six acres in pears and apples; beautiful place; modern, nine-room house, tenant house, pumping plants, electric lighted, packing house. One of the best orchards in Rogue River Valley, near Medford and Ashland, is offered at a sacrifice to settle estate. Must be sold. For price and particulars write or see

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It contains the signed statements of many ranchers who tell how they are becoming wealthy in the famous Santa Cruz Valley near Tucson, Arizona. About 80% of all products consumed in the valley are shipped in from California. The rich mining camps and the city of Tucson (25,000 population) pay fancy prices for all farm products Local farmers are getting rich. A very limited amount of land with water (suburban to Tucson) may be had at $150 an acre on long time terms. Best farming opportunity in America. Land selling fast.

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Pacific Electric Railway

Aids to the "Bee-ginner"

By C. D. Stuart

Los Gatos, California

In this article, which is one of a series written especially for Orchard and Farm, Mr. Stuart suggests ways and means of obtaining "book-learning" and points out the necessity of a judicious admixture of theory and practical experience. A a successful apiculturist, who has been through it all, he is able to draw a true perspective for the beginner. Means of improving the winter months by study are here suggested.

ONE of my most delightful aids during my own beginning days in apiculture was a Bee Club, a direct outgrowth of the State University Correspondence Course in Beekeeping. Not that the University recommended the organizing of such a club; what it did recommend was the keeping of a hive of real live bees for observation purposes in connection with the second lesson of the course. A neighbor came to the rescue, offering the use of her four colonies. The interest thus developed formed the nucleus of a club that later numbered fifteen members, the test of eligibility being either to own or seriously to contemplate owning a hive of bees, and in addition to define the word "apiary" If the candidate answered, "Some sort of museum where apes are exhibited," he was admitted to full membership, because we were then convinced that he needed us even more than we needed him.

The study of honey flora, supplemented by actual specimens brought to the meetings by one or two faithful scouts, was not the least important benefit. An inexpensive magnifying glass proved to be an indispensable first-aid in that department A brief outline of the programs at the seven meetings held during the year follows:

The First Program

October 31, 1915. We began at the very beginning, slides showing the dissected body of a worker-bee having been prepared by a physician, who also loaned a fine professional microscope. Chaparral, bloodroot and wild buckwheat were among the honey flora analyzed.

November 28. Study of honey flora continued. Eucalyptus that had just come into bloom, the loquat and the pepper-tree were discussed. General discussion was held on queen-rearing, and the best' methods of securing strong colonies in time to catch the nectar from the early fruit bloom.

Early in January, 1916, the subject of preparing for spring honey-flow was again taken up. A paper was presented citing various authorities on spring feeding. A few days later, results of the meeting were observed in one small apiary. A Boardman feeder had arrived by parcel post, and a pedestal about three feet in height, nicely painted to match the hive, stood at a convenient distance ready to receive it. The feeder was filled with honey and placed on the pedestal. There I found it, impartially dispensing hospitality to all beedom, both wild and domestic. The owner's pride in the arrangement was obvious, and only after the delicate suggestion that the bees could store honey all through the night as well, if it were only nearer, would he consent to the removal of the feeder to its orthodox position in the hive entrance. Pussy-willow was reported to be in bloom.

Spring Discussion

April 23 being the time of natural swarming, increase of colonies by artificial swarming methods was chosen as the subject, various members reporting large percentages of increase in their colonies. Specimens of honey flora, including ceanothus, or California wild lilac, locust, poison oak, orange, mustard, lupine, California poppy, alfilarce and blackberry, which were in bloom at the time were brought to the meeting.

The Outdoor Meeting

On June 11 occurred the first outdoor meeting. We had already learned from books the proper age of larvae for queen-cell grafting; but when one of our guests, a widely known and successful queen breeder, showed us how larvae of the proper age should look, we realized how haphazard our previous work had been Bees were reported working on the tollon, or California Christmas-berry tree, also on the chestnut and cascara.

The July 16th meeting was devoted to the gastronomical side of apiculture. A picnic luncheon, in which honey entirely replaced sugar as sweetening, was served in the depths of a beautiful glen. Not a word of educational value escaped us and we followed strictly the injunction to "eat, drink and be merry!"

August 3rd the club met to hold the last solemn rites over the remains of a member's twelve colonies, a severe three months' battle with yellow-jackets having reduced the number to two. But as other members were defending their own bees from the common enemy, they could only sadly shake their heads, murmur condolences and adjourn.

But the Bee Club was not the only benefit brought about by the University Beekeeping Correspondence Course. To the beginner in honey production it will more than repay the time devoted to the fourteen lessons included. While there are numerous textbooks giving in popular form the essential principles of apiculture, the benefits of a University course are found in the bringing of abstract technical principles up-to-date, and in the adapting of those principles to the State or locality in which the University is situated. (The free correspondence course may be obtained by writing the Division of Agricultural Education, University of California, Berkeley—Ed.)

Conditions Vary

There is no branch of agriculture in which the effect of local and climatic conditions on the crop varies so widely as in apiculture, and while American textbooks attempt to cover the varying conditions that are found in the entire country, it is impossible that the authors of those books can have had sufficient experience in all sections to speak with authority. It becomes, then, the province of the University correspondence course to take up the general principles of apiculture and adapt them to the special locality of the student. The benefit of this method to the beginner is the saving in time required to gain the necessary technical knowledge

The reading of bee journals is at first confusing to the novice, because each writer in the monthly "talk-fest" expounds a system that he himself has worked out successfully. Often these systems appear to be at variance with one another, and the inexperienced seeker-after-light is almost disheartened at the apparent lack of agreement among men who have succeeded in their callings. Yet after the various methods are gathered into a harmonious whole, there will appear to be at the bottom of an apparent paradox nothing more vital than the natural difference in con-

(Continued on Page 23)

Must California Housewives Use Oklahoma Brooms?

(Continued From Page 10)

stalks with a knife, but the Dwarf heads may be "snapped off"; the harvester grasps the head, and stripping back the leaves, snaps it off at the first joint by a downward jerk. The heads are carried until the operator has a handful, when they are laid in the shade of the stalks upon "tables" of broken-down stalks and leaves. If there is no danger of rain, they may be cured in the field for several days, but this is risky. It is considered far safer to haul in the heads the same night that they are harvested, and to rick them up in such a manner that they will not heat, allowing them to cure for at least five days.

Cheap Curing Shed

A simple shed may be built of poles, about twice as long as it is wide, and sided with boards spaced several inches apart. These boards serve as rests for other narrow boards, which are placed every eight or ten inches from the ground up, in the form of shelves. Two narrow strips will make a shelf for one row of heads, which is built up to a height of eight or ten inches. Then another similar "shelf" is placed and when this is filled, another, and so on until the shed is full. If covered with canvas or any roofing to keep out the sun and rain, such an arrangement makes a good curing shed, allowing plenty of aeration.

The Threshing

When the corn is thoroughly cured it must be cleanly and carefully threshed. Mr. Newbill uses a home-made threshing machine, consisting of a piece of gum log, about 12 inches in diameter, bound at the edges with iron hoops and fitted with an axle, which is set in home-made babbit bearings upon a wooden frame. Into the drum are driven 20-penny spikes, with the heads filed off, set irregularly and spaced about two inches apart. The drum is driven by means of a belt and pulley with a two horse-power gasoline engine. Much straw is injured by careless threshing. The wheel should not revolve at a speed of more than 500 revolutions per minute, and each bunch should be turned until all seed and chaff are removed.

The threshing crew consists of the "feeder," two "carriers" and two "pilers." The carriers bring the heads to the feeder, placing them in handfuls, crosswise in piles upon a table conveniently near his hand. He grasps each bunch firmly, holds it against the revolving drum, and then drops the brush on the other side, where the pilers gather it up and rick it for baling. The seed is thrown ahead in a pile, and may be held in place by means of a canvas curtain, strung on poles or posts. Large power threshers are used where big acreages are grown.

Baling the Straw

A home-made baling machine is also part of the equipment at the Newbill ranch. It consists of a frame of the proper size for the bale, and a heavy hand lever which is used to press down the pile. The bales measure 2[illegible]x48x48 inches and the average weight is about 285 pounds. No. 10 or 12 annealed wire is used, five wires going around the bale and two around the sides, where they are fastened to the binding wires. The heads are laid with the stalks out and straw in. The straw is slightly crossed in order to hold the two rows together. The bales, as well as the curing heads, must be protected from sunlight and rain.

The stalks and leaves remaining in the field are valuable as stover or en[illegible] feeding value having been [illegible] at from $3 to $5 an acre.

While the seed is not regarded with the greatest favor as feed in the regular broom corn sections, Mr. Newbill is very enthusiastic about the results obtained in feeding his seed to hogs. He values it at $50 a ton at present feed costs, and secures excellent results by cooking it in a tank. This cooker, under which a wood fire is built, holds enough for several days' feeding of his small bunch of hogs. In the boiling process the seed swells to about twice its normal size and, he finds, is eaten with pactically no waste and with great relish. Supplemented with pasture and tankage, broom corn seed seems to make an ideal fattening feed. The yield, in tons, of seed is usually about twice that of straw.

One objection to the growing of the crop under present conditions is the large amount of hand labor involved; much of this, however, may be performed by boys or women. It is the opinion of leading broom manufacturers, of which there are a number in San Francisco, Sacramento, Oakland, Los Angeles and smaller towns, that prices will remain very good for the high-grade corn. They point out that housewives are beginning to realize that a $1.25 broom is a better investment than a 50-cent one, because it will last without breaking off, until it is completely worn out; the demand for brooms of higher quality is therefore constantly increasing.

It seems, indeed, a shame that our manufacturers should find it necessary to bring their material from the middle west, and they agree that they would much prefer to purchase their stock in California if they could secure straw of good quality. Mr. Egerer, who is one of the largest buyers of California corn, secured one lot this year from Kings county which surpassed any corn he was able to buy in the East. In fact, he pronounced it one of the best lots he had ever seen. Therefore, it is not unreasonable to suppose that we will eventually produce enough good quality straw to "sweep the whole State of California" and perhaps some of our neighbor States!

Aids to the "Bee-ginner"

(Continued From Page 22)

tions—especially of climate and flora—under which the various writers were operating their apiaries and gaining their experiences.

A year or two of practice will enable the novice to understand that even in his own locality there is likely to be a wide variance in the methods he must use from season to season, because of the changing climate and environment.

Chief among the non-computable benefits to the beginner in beekeeping is the outdoor life it fosters—long hikes trailing the bee to the sources of nectar and long, lazy hours just watching the antics of young workers playing around the hive entrances. Those hours, rich in ozone, bring about a veritable renewing of the physical and spiritual man.

Symptoms of European foulbrood are variable, color being perhaps the most constant symptom. The earliest indications of the disease are a slight yellow or gray discoloration, and the uneasy movement of the larva in the cell. As the decay of the infected cells proceeds the color changes to a decided yellow or gray. A symptom of the greatest importance is the fact that the disease attacks drone and queen larvae nearly as quickly as those of the workers

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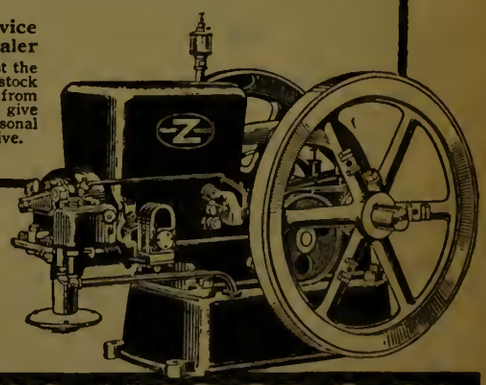

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K Stump Puller

One man with a "K" can outpull 16 horses. Works by leverage—same principle as a jack. 100 lbs. pull on the lever gives a 48-ton pull on the stump. Made of best steel—guaranteed against breakage. Has two speeds—60 ft. per minute for hauling in cable or for small stumps—slow speed for heavy pulls. Works equally well on hillsides or marshes where horses cannot go.

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Easy Ditching

THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with

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These are Aberdeen-Angus victory points thus far in 1918. Beginning with the Fort Worth Fat Stock Show last March, when the "Doddie" steers won all single steer grand championships over all breeds in both the open and Boys' Baby Beef Classes, the victorious drive has continued with the State Fairs.

At Springfield, Ill., Aberdeen-Angus won both single and steer herds grand championships; at the Iowa State Fair an Angus calf stood at the top of a class of 107, the pick of over 700 entries in the State Boys' and Girls' Calf Feeding Contest, at the Nebraska, Oklahoma and Kansas Free State Fairs, Aberdeen-Angus steers were grand champions; at the Kentucky State Fair the champion six head of steers were Aberdeen-Angus; at the Tennessee State Fair the $500 Caldwell Special for the best exhibit of live stock was won by a herd of Aberdeen-Angus; at Chattanooga another Angus herd won a similar class; at the New York State Fair an Angus steer was Grand Champion. Both best beef herd and carcass contest at the first Territorial Fair in Hawaii went to Aberdeen-Angus. At Brandon and Edmonton Spring Shows in Canada the grand champion steers were Aberdeen-Angus, and the Boys' and Girls' Calf-Feeding Contest winners were the same kind. Free literature.

AMERICAN ABERDEEN-ANGUS' BREEDERS' ASSOCIATION
817-OF Exchange Avenue CHICAGO

Dethroning Forest Monarchs

Four men and a "tank" clear an acre a day. Oregon's virgin forests invaded by the farm tractor and great tracts made available for cultivation.

By O. H. Barnhill

An Ashland, Oregon, Ranchman.

WE have all read how the big army tanks, in an attack, tear through forests and over all obstructions, sometimes pushing over good sized trees in their advance. The power of the big crawler-type tractor is strikingly brought home to us by its extensive use in land-clearing operations. Pulling giants of the forest out by the roots is one of the most interesting feats accomplished by the more peaceable "cousins" of these tanks of war.

Five of these tractors were used last year in Josephine County, Oregon, and were such a great success that several more will be added this year. One was employed in clearing fifty acres of land on which a beet sugar factory, sheds and feed yards were later constructed and others were used on big ranches. Clyde E. Niles used a 30-horsepower machine in clearing 200 acres of timber and brush land on the Riverbank Farms near the mouth of the Applegate River, ten miles west of Grant's Pass. Two more 45 horsepower engines have been ordered and will be put to work clearing 1000 acres which remains to be subdued.

Cost Is Reduced

By the use of the small tractor the cost of clearing, which would be from $75 to $100 per acre if done by ordinary methods, has been cut in half. Trees up to 20 inches in diameter are pulled with ease and one sugar pine 22 inches in diameter was uprooted by this little giant.

In pulling out the trees by the roots a 60-foot cable with a hook in one end is used. Into this hook there is attached a ten-foot cable having a loop in one end and a hook in the other end, the latter being used to fasten around the tree. The cable is sometimes fastened 30 feet from the ground in order to secure greater leverage. While one tree is being pulled, another short cable is fastened to a second tree, one man being assigned to each cable, while another pulls back the long cable and a fourth man runs the engine. This crew of four men clears an acre a day and the only outlay, aside from the labor, is for oil and distillate.

Finishing the Job

The uprooted trees are then converted into cordwood, which finds ready sale and practically pays the cost of clearing. After the tree-tops and stumps are burned, the brush is plowed out with a huge breaking plow weighing almost a ton and measuring six feet from share point to rear end of moldboard, which is ⅝-inch thick. This immense plow recently did remarkable execution in clearing a ten-acre field of willows some of which had attained a height of nearly twenty feet. A furrow two feet wide and fourteen inches deep was opened up with comparative ease, despite the mat of roots which bound the top soil together. Two men followed the plow, and piled the brush, after shaking the dirt from the roots. After all the trash was burned the ground was replowed, to cut all remaining roots and further to pulverize the soil.

In order to economize on time and overhead expense the tractor is fitted with electric lights, supplied by a generator, which make it possible to continue the plowing and clearing operations during the night.

THE MIGHTY PLOW

UPROOTING A GIANT

Selling Tractors on Time Payments

WE have realized for some time that tractors would eventually be sold on time payments, the same as automobiles, although keen competition and shortage of machines at first made this unnecessary. The quick response which followed the recent announcement of the Samson Sales Company of Los Angeles through Orchard and Farm, that they would henceforth sell G. M. C. Samsons on time payments, justifies our belief in the feasability of the idea. The Samson distributors believe that a tractor can be made to pay for itself; their adoption of the time sales plan will tend to strengthen the position of the farm tractor, for it indicates the utmost confidence in their own product as well as in the productivity of California soils when properly tilled.

2 to 1

Advantage in buying a

DE LAVAL

NOW

Butter-fat is now worth twice as much as it was two or three years ago.

So is labor.

A De Laval saves both.

And never before was there so urgent reason for saving every ounce of butter-fat and every half-hour of time and labor.

A De Laval will now pay for itself in half the time, compared with former years.

Buy it now and it will save its cost in a few months.

See the nearest De Laval agent right away and let him show you what the De Laval will save for you

De Laval Dairy Supply Co.

Largest Dairy Supply House on the Pacific Coast

61 BEALE ST., SAN FRANCISCO

STOP LOSING CALVES

You can **Stamp Abortion Out** OF YOUR HERD and **Keep It Out**

By the use of DR. DAVID ROBERTS' **"ANTI-ABORTION"**

Small Expense. Easily Applied. Sure Results. Used successfully for 30 years. Consult DR. DAVID ROBERTS about all animal ailments. Information free. Send for FREE copy of "The Cattle Specialist" with full information on Abortion in Cows.

DR. DAVID ROBERTS VETERINARY CO.
848 GRAND AVE., WAUKESHA, WIS.

Cured His RUPTURE

I was badly ruptured while lifting a trunk several years ago. Doctors said my only hope for cure was an operation. Trusses did me no good. Finally I got hold of something that quickly and completely cured me. Years have passed and the rupture has never returned, although I am doing hard work as a carpenter. There was no operation, no more trouble. I have nothing to sell, but will give full information about how you can find a complete cure without operation, if you write to me. Eugene M. Pullen, Carpenter, 1764 Marcellus avenue, Manasquan, N. J. Cut out this notice and show it to others who are ruptured. You may save them from at least stop the misery of rupture and the worry and danger of an operation.

Don't fail to mention Orchard and Farm when you answer advertisements. It is to your advantage as well as ours.

Starting With Figs

ONE of the finest locations in America for the Smyrna fig seems to be in the thermal belt along the base of the Sierras, from Merced County south. Fig growers in that section are very enthusiastic about their orchards, and are securing excellent returns. An experienced grower has prepared an estimate of the cost of starting an orchard, which, based upon average figures, may be of assistance to those who are inquiring into the possibilities of their own "vine and fig tree."

Land, per acre, $150; leveling and preparing for irrigation, per acre, $50; well and pumping plant, per acre, $15 to $25. (This would not, of course, include cost of pipe lines, which are not needed ordinarily at first and may be installed later if desired) It is safe to add $25 per acre, he thinks, for cost of getting started, to cover nursery stock and incidentals. The man who plans to begin at the beginning will, of course, have to figure his investment for buildings and stock, as well as machinery and working equipment.

Not a few growers have paid their expenses while waiting for the groves to come into bearing by growing corn, beans, hay or other inter-crops. The trees should produce a small crop the fourth year and a good crop the fifth year. After that, if ample provision was made at the beginning for capital, and no unexpected set-backs were experienced, the owner should begin to tread that fascinating thoroughfare known as "Easy Street," for the fig crop has proved to be a very sure one and the market demand strong and regular. The belief is now strong that the nation could be educated by means of advertising, to eat more figs, which are well-liked by almost every one, but sold in limited quantities as compared to the so-called "standard" American fruits. Have you ever seen a child who did not like figs at the first trial? For sheer merit in food value, palatability and beneficial effect upon the system, the dried Smyrna fig is "hard to beat."

Figs can be grown much further out on the floor of the valleys than can the more frost-susceptible citrus fruits, and there seems reason to believe that the acreage will steadily increase. Growers, however, are not worrying about the market, which stands ready to absorb much larger quantities of the domestic output.—D. J. W., Exeter, Cal.

Cracking of Fruit

While the cracking of different kinds of fruits on the trees is attributed to various conditions, by far the most common cause is believed to be varying soil moisture.

If orchard soil becomes dried out during the months when the fruit is growing, the development of the crop is retarded. Then a later application of moisture has the effect of greatly stimulating its growth. The skin, having lost some elasticity, or at least some of its ability to keep pace with the expansion of the fleshy tissues it encloses, is stretched to the breaking point, and more or less severe cracks result. These may be nominal or may extend deep into the fruit and thus ruin it entirely for market purposes; moreover, the cracks provide means of entrance for insects, rot and mould.

Any orchard practice which tends to maintain the moisture content of the soil, or in other words thorough cultivation or mulching, will have a tendency to prevent cracking. When it is considered that as high as 50 per cent of a crop may be ruined by cracking, the observance of ample precautions becomes of paramount importance

Three of the fine values in Durable-DURHAM Fleecy-lined Hosiery

JACK FROST
A good, warm children's stocking. Heavy weight. Double fleecy-lined. Full of warmth and full of wear. Strongly double reinforced heels and toes.
Sizes 6 to 7½, 35c
Sizes 8 to 10, 50c

SNOWBOUND
A big and warm stocking, outsize, extra wide. Double-fleecy-lined throughout. Full of warmth and full of wear. Extra large and elastic top. Strongly double reinforced heels and toes.
Price 50 cents

Warm, comfortable Fleecy-lined Hosiery for coldest weather

There are styles of Durable-DURHAM Hosiery for every month in the year. Some are light and sheer, some medium weight, some heavy for hard work and now for Winter weather you can get the same honest quality in Durable-DURHAM Fleecy-lined Hosiery. The fleecing inside is soft, thick and warm. Every pair is long-wearing and good looking. Ask your dealer for this splendid fleecy-lined hosiery.

DURABLE DURHAM HOSIERY

FOR MEN, WOMEN AND CHILDREN

is made strongest where the wear is hardest

Every pair is strongly reinforced at points of hardest wear. Tops are wide and elastic; legs are full length; sizes are accurately marked; soles and toes are smooth, seamless and even. The Durham dyes are fast so that colors will not fade from wearing or washing.

There are styles for every member of the family, for everyday work, dress or school, selling at 25, 35, 40 and 50 cents per pair. Look for the Durable-DURHAM Trade Mark ticket attached to each pair.

You should be able to buy Durable DURHAM Hosiery at any dealer's. If you do not find it, write to our Sales Department, 88 Leonard St., New York, for Free Catalog showing all styles, and we will see that you are supplied.

HIKER
An extra warm and long wearing sock. Double fleecy-lined throughout. Full of warmth and full of wear. Strongly reinforced heels and toes.
Price 35 cents

DURHAM HOSIERY MILLS, Durham, N. C.

Buy Our Pedigreed TREES

Fresno climatic conditions cannot be excelled for the production of well-matured trees. "From the Roots Up" is our motto. Commercial orchardists all over the State purchase our pedigreed trees because they give best results.

Place your orders now and have us reserve your stock. Do not forget to send your name and address and make sure of receiving an early copy of this year's catalogue and price list.

The Fresno Nursery Co.

P. O. Box 615-F Fresno, Calif.

TRAP FURS MAKE BIG MONEY

Free illustrated book tells how

Big Demand in Denver

for all your western raw furs—**Coyotes, Skunks, Muskrats, Wildcats** bring big money here. Denver closest and best market on earth for Western Trappers and Fur Shippers. **STEPHENS of Denver** is the largest exclusive buyer of Western Raw Furs in the world—**charges no commission**—saves you 50c to $10 on express or parcel post, and you get your money back 2 to 10 days quicker. Every shipment personally graded and priced by a member of the firm.

TRAPS AT FACTORY PRICES

STEPHENS sells traps, animal baits and all trappers' supplies at **rock bottom prices.** Write today for Big Illustrated Trap Catalog, Trappers' Guide, Fur Price List and Shipping Tags—**ALL FREE.**

TRAPPERS' GUIDE AND TRAP CATALOG FREE

E. A. STEPHENS & CO.

118 Stephens Bldg., Denver, Colorado, U. S. A.

WHERE SHALL I SHIP MY FURS?

The Important Problem

Every Fur Shipper Must Solve to be Successful

You are receiving price lists and other literature from many different Fur Houses—all claiming to pay the highest prices, etc., etc. This makes it difficult for you to choose your Fur House and a wrong guess may mean dollars out of your pocket. You must exercise great care and caution in choosing the Fur House to whom you are going to entrust your catch of Fur-bearers. You can solve this important problem by making "Shubert" a trial shipment.

For more than thirty-five years "Shubert" has been paying Fur shippers "more money" for their Furs—always giving an honest and liberal assortment—paying the highest market prices—sending returns out promptly, in other words, rendering "better service"—"quicker." "Shubert" offers you the SERVICE of an honest—reliable—responsible—safe Fur House—where you take no risk. "The Shubert Guarantee" protects you absolutely.

A trial will convince you. Get a shipment off—**TODAY.**

Write for "The Shubert Shipper," a complete Fur Market Report and Price List Issued at every change in the Fur Market.

It's FREE—Write for It—NOW.

SHIP YOUR FURS DIRECT TO

A.B.SHUBERT, INC.

The Largest House In the World Dealing Exclusively in

AMERICAN RAW FURS

25-27 W. Austin Ave. Dept. V Chicago, U.S.A.

©1914 ABS Inc.

YOU CAN MAKE A HANDSOME INCOME BY TRAPPING

Raw furs are extremely high now and the demand was never greater. Just think, even Skunks have sold this fall for over $9.75 each, and we know trappers who caught 19 Skunks in one night.

Wonderful Chance for Boys and Middle-Aged Men

There's a splendid chance for you to make money by trapping; it's pleasant work. Don't worry if you've had no previous experience. Our beautiful 36-page book, "Trapping for Profit," tells all about trapping and handling of furs, so that even the beginner can have wonderful success trapping and get the highest market price for his catch.

The book and price list are yours for a postcard. They're absolutely free.

E. R. SKINNER & CO.

1121 Front Street. Dept. C. Sacramento, Calif.

Trapping Hints for the Novice

A profitable "side-line" on many ranches, especially those located near the mountains, is the trapping of fur-bearing animals. This occupation offers special inducements just now, because of the high price of furs. This article tells just how to prepare the skins of the different animals in order to secure the highest prices.

WRONG methods of skinning, stretching and drying pelts cause the loss of thousands of dollars to trappers every year. The right methods to follow are just as easy if you know them—and here they are:

Skinning methods are of two kinds, "casing" and "open." Casing means peeling the skin off whole. Open means ripping the skin down the belly.

Animals which should be cased are the following: Mink, marten, weasel, opossum, fox, fisher, skunk, civet, muskrat, wild cat, otter, lynx, wolf and wolverine. Open skinning should be used with coon, badger, beaver, bear and cougar.

The following skins, before they become too dry, should be turned fur side out for shipping: Fox, lynx, fisher, wolf, marten, wolverine and wild cat. Leave the others, which are cased, pelt side out.

How to Case

To case a skin, cut from the root of the tail down the inside of each hind leg to the foot. Then pull the skin carefully over the body and head. The tail should be skinned and the bone removed, except for muskrat and opossum. These two can be cut off as they are worthless. Skinning is made easier by suspending the carcass by means of a strong cord tied around the hind legs. Draw the skin from the front legs. Cut off the ears, downward toward the head. Cut the skin loose about the nose and eyes.

The Open Method

In using the open method, cut from point of jaw to vent, also down back of hind legs and inside the front legs. Lynx, mountain lion, bear—which are valuable for rugs or mounting—should be skinned on the legs clear to the toes, leaving the claws attached. Smaller animals, valuable only as furs, may have the legs cut off.

Be sure to clean every bit of flesh and fat from the skins, using extreme care to avoid cutting.

Steel stretchers, which can be had in just the right shape for different skins, give the best results. If you do not use these, and do not know from experience the shape and size to make board stretchers, by all means write to one of the big fur houses for information. Improper stretching may make skins almost valueless.

Curing the Skins

When the skins are on the stretchers, put them in a cool, dry place—never in the sun or near the fire. Dry them just enough to prevent shrinking and wrinkling. If you find that a skin has become too dry to turn, soften a little with a damp cloth. But be sure to let the dampened spots dry out before shipping.

Do not use patented preparations for curing, just depend upon the natural drying.

This matter of preparing skins is extremely important and it will mean many more dollars in your pocket to secure some trapping book which goes into full detail about it. Or, as suggested, write to a fur house for information. They are interested in getting furs in perfect condition and will be glad to tell you how.—P. E. Faust.

Information

A liberal education does not necessarily involve the memorizing of a lot of facts and figures. An important part of education is to know the sources of knowledge. The man who understands where to find information when he needs it receives more practical benefit from his education than the man who has statistics stored in his brain.

THE 1000th Government bulletin was recently published. The last 100 have been a great improvement over the first 900, for thanks to a secretary who saw the necessity of "taking the bull out of bulletin," our Agricultural Department has undertaken of late to make its publications more readable and practical.

Just cut out this list, checking the publications you want, and send it with your name and address to the Division of Publications, United States Department of Agriculture, Washington, D. C They will do the rest.

	Farmers' Bulletin
Rodent Pests of the Farm	932
Clearing Land	974
Eradication of Bermuda Grass	945
Corini Smuts and the Disinfection of Seed Grain	939
Larkspur or Poison Weed	988
Harvesting Crops with Live Stock	1008
Potato Culture Under Irrigation	953
Curing Hay on Trucks	956
Cultivation and Utilization of Barley	968
Sweet Potato Storage	970
Labor-Saving Practices in Hay-Making	987
Better Use of Man-Labor on the Farm	989
Commercial Bordeaux Mixtures (How to Calculate Their Values)	994
Sugar Beet Growing Under Irrigation (Revised)	567
Hog Pastures for Southern States	951
Breeds of Light Horses	952
Transferring Bees to Modern Hives	961
Farm Household Accounts	964
Purple Vetch	967
How to Use Sorghum Grain	972
The Control of European Foulbrood	975
Preventing Wood Rot in Pecan Trees	995
The Gas Tractor in Eastern Farming	1004
Horse Beans	969
Information about Fruit Sprays	908
Cooling Milk and Cream on the Farm	976

And here are some of the more recent publications of the California Agricultural Experiment Station, Berkeley, which are also available for free distribution:

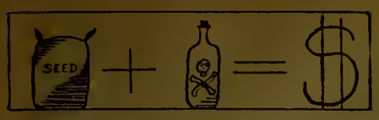
	Bulletin
The Almond in California (A 72-page treatise of great interest and value)	297
Seedless Raisin Grapes (By Frederic T. Bioletti)	238
Peat as a Manure Substitute	209

Walnut Worms

THE walnut growers this year are somewhat concerned over the increased infestation of the walnut worm in some sections. This matter is now under investigation by the State Commissioner of Horticulture and while this investigation is not yet completed it has progressed sufficiently to justify the statement that any measures to prevent further spread of the insect must receive the hearty support of growers, packers and dealers. The worm emerges from the nuts about harvest time and a favorite spot for making the cocoon appears to be in sacks. It therefore seems probable that the first step toward restricting its spread is to restrict the movement of walnut sacks. The present scarcity of sacks makes it desirable that any restrictions placed upon their movement be as lenient as is consistent with the safety of the industry. The answer to this problem, of course, is found in applying some disinfectant to walnut sacks which will be so effective, so simple of application and so cheap as to promote its general use.

Such disinfection is believed to be obtained by the use of heat. Many walnut packing houses in or near infested districts are now equipped to apply heat to all walnut sacks before they are permitted to leave the premises. Dry heat developed by means of ovens is being used. Superheated steam makes an economical, quick and sure disinfectant, and is practically a dry heat as it does not seriously moisten the sacks. Disinfection by dipping the sacks in boiling water is equally effective but has the disadvantage of requiring that the sacks be dried after treatment.

Every walnut packing house whether in an infested district or not should be equipped to disinfect walnut sacks before returning them to the growers.—G. H. Hecke, State Horticultural Commissioner.



Weevil Control

To Save Stored Seed

WEEVILS may destroy the germinating power of more than half of a quantity of stored pea and bean seed. It is possible, however, entirely to destroy the weevils by means of fumigation. Although no satisfactory method of controlling the weevils in the field has yet been devised, prevention of the trouble may begin when the crop is harvested.

Early Prevention

In gathering the crop, many successful growers take especial care to leave no portion of it on the ground, as seeds which are scattered in the field or left in shattered pods on the dried vines may carry the pest over winter and furnish a supply of weevils the following summer. The crop should be harvested as soon as possible after reaching maturity and the seed threshed or shelled soon afterwards. Storing in the pod does not confine the weevils. Immediately on placing the seed in storage it is advisable to fumigate with carbon disulphid or carbon tetrachlorid. These chemicals when exposed to the air vaporize into a heavy poisonous gas which immediately kills the weevil. Carbon disulphid is the more generally used, though carbon tetrachlorid has the advantage of not being inflammable. Seed to be fumigated should be placed in an air-tight container, such as a tin can or barrel.

The chemicals, used at the rate of from 2 to 4 pounds to each 500 cubic feet of space to be fumigated, should be poured over the top of the seed and fumigation should continue for from 24 to 48 hours. As weevils breed generation after generation in stored seeds, the seeds should be watched to make sure that they do not become reinfested. In such case fumigation should be repeated.

Killing by Heating

When there is only a small quantity of seed the weevil may be killed by heating the seed in the oven for several hours. The oven should not be hotter than 120 to 145 degrees F. Dipping seed in boiling water for one minute is also an effective remedy. Weevils will not feed or cause damage at low temperatures, and if seed can be kept in cold storage at a temperature of 32 to 43 degrees F. no trouble from this pest will result. In the Southern States, where weevils cause such great injury to stored seeds, certain farmers have resorted to mixing their seed cowpeas with dry road dust or air-slaked lime, which prevents weevils from developing to multiply in storage. This method can not be used when the seed is intended for food. Seeds once treated should be stored in rooms free from adult weevils, or placed in tight barrels or sacks made of closely woven material, and should be examined occasionally as a guard against subsequent infestation.

Acorns for Hogs

Orchard and Farm is interested in learning whether any subscriber has had good success in maintaining hogs on acorns. If so, how many hogs can be carried to the acre of good oak pasture, how long can they be maintained, and what results may be expected? Will the hogs gain rapidly or stall, and if so, how do acorns compare with other feeds for pork making? We would be pleased to hear from any reader who has made a success of turning hogs into the oak [illegible]

Cleveland Tractor

Machinery Must Replace Muscle

Man-power is at a premium on our farms.

War has taken several million men into the service.

And in spite of these conditions, which are steadily growing worse, there must be *more* crops produced than ever before.

Machinery *must* replace muscle.

Thousands of Cleveland Tractors are successfully meeting the labor shortage and the demand for increased production.

The Cleveland Tractor, pulling two 14-inch bottoms in medium soil, plows 3½ miles an hour—eight to ten acres a day. That is all you can expect from *three* good men with *three* good 3-horse teams.

The Cleveland travels on its own tracks, laying them down and picking them up again like the famous battle "tanks." It turns around in a twelve foot circle. It gives you 12 horsepower at the drawbar for pulling, and 20 horsepower at the pulley for stationary work. It has 600 square inches of traction surface continually on the ground and will go almost anywhere. It weighs less than 3200 pounds.

But in spite of its power, the Cleveland Tractor is so small that it can easily go under and among small trees.

It will go through ditches, gumbo, sand and gravel, over unused roads, plowed fields and stubble. It will not pack the soil, will not mire or flounder.

Rollin H. White, the famous automotive engineer, is the designer of the Cleveland Tractor. It is produced under his supervision.

He has used only the best materials. Gears are protected by dust-proof, dirt-proof cases.

The track is designed for long service. The sections are joined with hardened steel pins which have their bearings in hardened steel bushings.

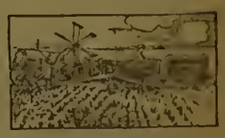
You must replace muscle with machinery on *your* farm.

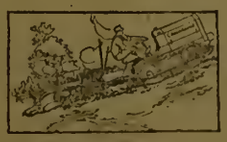
The Cleveland Tractor offers the means of meeting the emergency.

Write us for detailed information and name of the nearest Cleveland dealer.

The Cleveland Tractor Co.

19081 Euclid Ave., Cleveland, Ohio





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Cleveland Tractors

For Southern and Central California

SMITH BROTHERS

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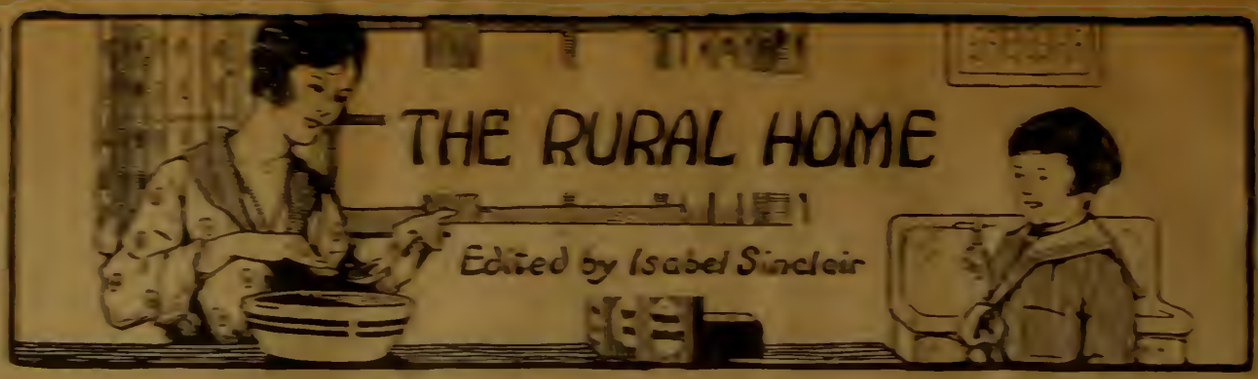
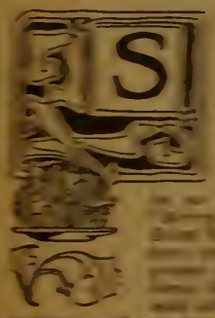
LOS ANGELES





S

Exploring for Sweets

H

Exploring Sweet Tables

Sweets From the Orchard

APPLES COOKED IN CIDER—For a dish that needs neither sugar nor spice, fry apples or pears slowly until clear in boiled sweet cider. Serve hot in large saucers with cream.

APPLES AND BANANAS—Simmer raisins in the water in which they were washed, cut apples and bananas slices and sprinkle with sugar.

APPLES AND BANANAS—Quarter apples and slice in a baking dish; dot each layer with butter and cinnamon and cover it a quarter inch deep with a sauce made of a tablespoon of water, a tablespoon of white sugar and a little lemon juice.

BAKED PEARS—Or baking pears, try sweet pears. Place pears in deep baking dish, sprinkle sugar and bake slowly until pears are a deep red.

STEAMED PEARS—Steam pears until tender with a little water and a tablespoon of white sugar.

Sweets From the Garden

SWEET POTATOES PLAIN—Sweet potatoes are full of sugar and very "filling." They are best either baked, or boiled and served with meat gravy. Serve them often as a substitute for both dessert and bread.

SWEET POTATOES "SOUTHERN STYLE"—Boil and peel potatoes, brush them over with butter, place them upon a dish, and pour over them a little water or cider.

Inspiration

By Grace Frances Dale

Lord, of Gold, I stood and sought a crate
Of accomplishings. I had one aspect
In all that strong and accused in vain said, long
When in —a lingering problem found my heart

A flower-like face had passed, head forward in prayer.
Its eyes met, and my gaze fell on her smile
Full courage came to face another day
And life again seemed rich and worth while.

Sweets for Supper

Sweets for Dessert

CANDIED YAMS—Wipe the yams and place them in a baking pan; sprinkle with sugar, salt, pepper, butter and a few cloves and a half cup of hot water; bake in the oven. Sugar may be omitted and a teaspoonful of vinegar added to the hot water. This dish goes nicely accompanying the Sunday chicken in the fall, or the regular, unpretentious or luxurious, dinner in November. The same yams are served with chicken.

SQUASH OR PUMPKIN—For this pie use pumpkin, squash or butternut squash. Bake, drain and mash squash; add butter, lemon juice, cinnamon and a little salt; bake in custard or baking pan. Pass cream; you have the pie after the shells have been served.

Sewing on Sundays

Dress Up Your Table

Dress Up Your Treasures

How to Dust Better

Dress for Vegetables

To Clean an Oiled Mop

The Elberta Peach

THE Elberta, which has made Georgia famous as a peach-growing State, responds kindly to the more genial environment of California. The accompanying photograph is of a bucketful of twenty-two Elbertas weighing thirteen pounds. The heaviest, which is shown at the side of the bucket on the table, weighed twelve ounces.

These peaches were taken from a fifteen-year-old orchard just outside of Chico, in Butte county. The soil, which has not been cultivated for the past two seasons, is a deep loam, with the water-table rising in mid-summer to within twenty feet of the surface.

The Elberta is a juicy, sub-acid, freestone peach, ball-shaped, with a faint yellowish stripe on a blush cheek when ripe. The flesh is yellow, with a deep-red stain where the pit touches it. The pit is large and tends to split when the fruit is overgrown. It ripens in August, a week later than the Muir, and dries somewhat lighter. It is a good shipper and a favorite as a market peach, resembling the Crawford in size and flavor. It is well liked in the neighborhood of Chico, the trees being vigorous and free from disease, and the peaches hanging fast to the boughs until dead-ripe.—C. D. S.

Simple Water Cooler

To Orchard and Farm:

I made a very satisfactory water-cooler out of a length of cement irrigating pipe. It was of course necessary to close one end. This was done merely by filling it with cement, the first filling being coated over outside and in, after it had hardened, with a "wash" of cement and water. I made a hole near the bottom for the faucet, which I purchased at a plumbing supply house, and cemented it in the hole at the same time that the end was filled. The cover was molded from cement with a flange to hold it in the upper end of the pipe and a "button" by which to lift it. I did not make a form for the cover, but simply molded it like clay from a comparatively dry cement mixture, coating it after it had set, with a thin wash.

It was necessary to rinse out the cooler every day for several weeks in order to get entirely rid of the taste of cement. It has now seen hard service for a long time, however, and if set out-of doors where it catches the breeze will keep the drinking water almost ice cold. This result is accomplished by the slow evaporation of the water through the porous pipe. —M. V., Glendale, Cal.

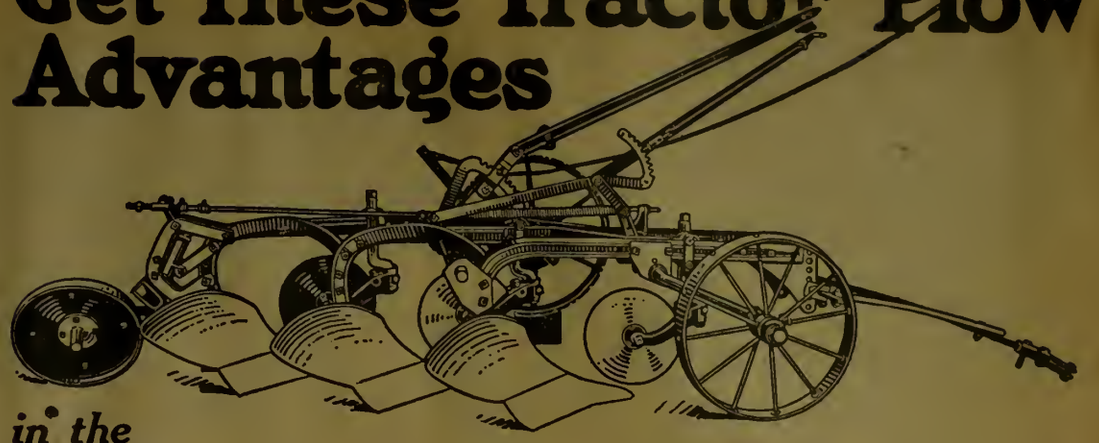
Treating for Smut

If there are any smut balls in the seed wheat remove them with a fanning mill if possible. Where no fanning mill is available, float off the smut balls in water, skim and destroy. Then soak the seed from three to five minutes in a bluestone solution (one pound of bluestone to four gallons of water).

When the seed no longer drips, dip it in a lime solution for two or three minutes. Make the lime solution by slaking one pound of quick lime in ten gallons of water. The lime prevents bluestone injury to seed planted in the soil.

A wooden trough or tank should be used for the bluestone solution

Get These Tractor Plow Advantages



in the

JOHN DEERE TRACTOR PLOW

Specially Adapted for Plowing in California

There is special satisfaction for you in using the John Deere No. 5 or No. 6 Tractor Plow because these plows are built to meet the particular plowing requirements of California.

They are unusually steady running. Controlled by the wheels at all times because the axles are rigidly fastened to the beams. Land wheel is set back, balancing the weight of the plow over all of the wheels and insuring even depth of plowing in uneven ground. The plows get down to position quickly and stay in the ground while plowing.

Exceptionally strong in every part. Beams warranted not to bend or break. Beam braces have extra long lap. Large bolts and lock washers hold all parts rigidly to place.

Simplest and most dependable power lift ever designed. No chains or sprockets. Powerful clutch engages positively, raising bottoms high and level.

Location of land wheel and front furrow wheel permits plowing close to trees or vines in throwing either to or from the row. Both levers out of the way of limbs while plow is at work.

Unusual clearance for unhindered work in trashy land or in deep plowing.

Quick Detachable Shares save time and labor without sacrificing strength or close fit. Loosen one nut to take a share off. Tighten the same nut and share is on tight.

Genuine John Deere bottoms wear, scour and pulverize to best advantage.

Hitch adjustable for any standard tractor. Two, three and four-bottoms sizes, 10, 12 or 14 inch cut per bottom.

You will find these plows especially dependable for better and longer service. Investigate them at your first opportunity. Your John Deere dealer will show them to you.

Send for Free Books Write today for our free booklet describing fully the John Deere Light Tractor Plows. It has a message on tractor plow value that you will find profitable to you. Ask also for our big free book *"Better Farm Implements and How to Use Them."* Its 156 pages describe a full line of labor saving implements—(tells how to adjust and operate many of them). It is full of practical information that will help you. Put it in your library. Use it as a reference book. It will be worth dollars to you.

To get these books, mention the implements in which you are interested and ask for package PT2.

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San Francisco, Cal.

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Hand operated. Bores wells 8 to 16 in. dia. 40 to 100 ft. deep. One man bored 40-ft. well in 10 hours and put in casing.

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One day's work pays for it

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An ounce of "Eureka" means $ $ to you

Eureka Harness Oil gives long life to harness. That means dollars to you. Protects leather fiber from dust, sweat and moisture, which cause rot. Replaces the natural oils that have dried out. Keeps harness strong, flexible and jet black. No animal oils in "Eureka"; rats, mice and other rodents dislike it and won't gnaw harness dressed with

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The Saw Most Carpenters Use

Buy Your Saw Like The Carpenter Does

There is no reason in the world why the farm tool kit should not be just as good as the carpenter's.

There is a big difference between a good saw and a poor one and there is a big difference in the sort of work they turn out.

The difference in saws doesn't show on the outside—it shows in the way they work.

If you buy your saw the same way the carpenter does, it will do the work as well as the carpenter's saw.

Buy it by name—Disston. That is all you need to know. Quality *does show on the outside* of a Disston Saw. It is stamped on the blade and it is spelled like this—"Disston." Look for it. It is your guarantee.

Send for our booklet, "Disston Saws and Tools for the Farm"

HENRY DISSTON & SONS, Inc., Philadelphia, U. S. A.

Canadian Works: Toronto, Canada

The Farmer's Concrete Mixer

Sheldon Batch Type Mixer—Prices $11.50 to $120.00

The Sheldon was designed especially for the Ranch or Farm. Highly praised by users all over the Pacific Coast. Farmers everywhere call it the ideal mixer. Small enough to be easily moved—big enough to keep six men busy. Low in price. Build your own concrete irrigation ditches, laterals, tanks, troughs, floors, foundations, walks, buildings etc. with a Sheldon Batch Type Concrete Mixer. To make it easy for you to get a Sheldon Mixer we now have a

Big Stock of No. 4 Sheldon Mixers (like the picture) at the Pacific Coast Warehouse, and we can make

Quick Shipment from San Francisco

We paid the freight to San Francisco—you save time and freight expense if you buy now. Shipped set up ready for instant use. Sold direct to you on strong guarantee. Thirty days' trial privilege. No other like it. Patented. Mixes 3 cubic feet a minute. One man can operate it, but it will keep six men busy. Continuous chain drive, tilting dump, clutch pulley, 13-gauge steel barrel, all parts guaranteed. Does work equal to $400 mixers. Write for catalog now—shows all styles—hand and power, on legs, skids, and wheels, with or without engine.

Remember we paid the freight to San Francisco. Send your order or request for catalog direct to the factory. Write today.

Sheldon Manufacturing Company
Box 7100 Nebraska, Neb.

The Sheldon will pay for itself on its first small job. Takes the backache out of concrete. Makes possible those many small improvements that add so much to the value of your land.

While we have plenty of Steel Barrels now, the supply may be cut off at any time—order now or you may lose out.

Oil-less Tractor Gears

THE day of "tin tractors" has passed, and the machine which is built like a gang-plow or a mowing machine, of soft castings and cheap bearings, if not already on the dump-heap is headed that way. For a tractor is subjected to harder knocks and more difficult working conditions than any automobile! The use of high-grade alloys and bearings in automobiles is now general, and the tractor manufacturers have come to realize that even better materials and more of them must be incorporated in the coarser mechanism of the tractor. In fact, the larger tractor manufacturers are following to some extent the lead of the motor-truck makers.

One interesting tendency is towards the more general use of manganese steel. The makers of "Amsco" manganese steel, which owes its great toughness and hardness to its manganese content, amounting to 12.5 per cent, have startled a great many persons by their recommendation that tractor gears and pinions made of this metal be run bone dry, without any lubrication whatever. This is a new idea to many of us. The explanation is that a lubricant invites wear when it comes in contact with particles of grit, forming a grinding compound. When the gears run dry, however, the vibration has a tendency to throw off gritty particles, and the result is increased longevity.

All for 25 Cents

Or with one new subscription to Orchard and Farm, a Christmas package containing 193 pieces! Think of it!

This package, which includes tags, "stickers," labels, postcards, folders and gummed markers, contains sufficient material to make all your holiday letters and packages attractive and artistic.

"Just between me and thee," the Circulation Department gave me a package for preparing this little announcement, and several of my friends to whom I showed it would not believe that it could be sold for 25 cents. In fact, one of them showed me that the city stores would charge at least 75 cents this year for similar goods.

Personally, I do not believe the collection could be bought for even 75 cents, for it is not a cheap assortment, every card and label is printed in brilliant colors on heavy white embossed cardboard or paper. And there is not one that is not pretty and artistic! Holly, poinsettias, bells and Santa Claus pictures are profusely used. I can personally assure our readers that this is a real bargain, and that there is not one piece in the package that is not worthy to grace the most fastidious gift package.

If your subscription of Orchard and Farm is about to expire, or if you have a friend to whom you would like to send this great farm magazine as a gift, here is an opportunity to secure something really worth while at a big saving—something every household needs at Christmastide. But even if you do not wish to receive the package as a premium, it is worth at least three times the cash price asked! Just send a subscription order or 25 cents in cash or stamps to Orchard and Farm, Examiner Building, Los Angeles, Cal. Merry Christmas to you all.—Isabel Sinclair.

Currant Grapes

The article by George C. Hussman, United States Department of Agriculture pomologist, in the November issue of Orchard and Farm brought forth the greatest interest and enthusiasm. We have received many urgent requests for further information about currant culture, and will, therefore, publish in our next issue some very practical information upon the establishment and management of the grapes, with suggestions from the personal experiences of Mr. Hussman.

Now's the Time

to get in your dormant or winter spraying. If done properly—this will prevent the accumulation of certain insect and fungus enemies; will clean your trees and soften the bark; and will keep the trees in better health, vigor and fruitfulness. For this purpose there is nothing so effective as

Crude Oil Emulsion

Remember—Universal Orchard Sprays are made by us from the finest materials, under expert supervision. They are quick and sure. And—*they penetrate.*

Among the other sprays manufactured or distributed by us are;

- Dormant Soluble Oil
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- Arsenate of Lead
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Order now—don't wait until your trees are laden with deadly insects.

Never hesitate to write our Service Department—in charge of Paul R. Jones, Expert Entomologist. His advice is dependable—and it's yours *free.*

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ORCHARD SPRAY

RANCH TOOLS FOR SALE

FOR SALE—RANCH TOOLS FOR 30 DAYS AT PRESENT WHOLESALE COST PRICES; WE NEED THE SPACE FOR OUR TRACTOR AND ACETYLENE WELDING SCHOOL. BE PREPARED AND SAVE MONEY BY GETTING YOUR NEXT YEAR'S TOOLS NOW; THIS IS NOT AN ADVERTISING SCHEME, BUT A GENUINE SALE OF ALL KINDS OF RANCH TOOLS.

SCOTTY'S PLACE
135 S. Los Angeles St., Los Angeles, Cal.

See Hubbard the Land Man's adv. on page 21.

GATES HOTEL

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LOS ANGELES
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Cafe and Restaurant
Garage in connection
Take Taxi at Station at our expense
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Campbell's Article

(Continued from Page 8)

absorb the winter moisture. In the spring, one was twice harrowed crosswise of the furrows with a spike-toothed harrow, and then spring wheat was drilled in. The other was double-disced and drilled with the same kind of wheat at about the same time; 30 pounds of seed to the acre was used for each. The total rainfall on these fields from June 30, 1917, to August 27, 1918, was only 4½ inches. The harrowed field produced eight bushels per acre, while the disced field, notwithstanding the fact that tillage with the disc cost fully three times as much, scored a complete failure. The loss of this crop was a direct result of the loosening of the soil.

The Moral

There are two important lessons to be learned from the above examples: First, that a firm, moist seed bed is of vital importance; second, that it is not unusual for farmers to do work that is not only of no value but absolutely a detriment. Therefore we assert that good, careful fitting of a field for crops does not always mean increased cost, but rather in doing what is done at the right time and in the right manner. As in all other en-

No. 3

Remarkable Dryland Oat Crop

deavors, there is a right and a wrong way to do work, and each kind will bring its corresponding results.

Effect on Oat Yield

Cut No. 3 illustrates a field of oats grown 54 miles southeast of Cheyenne, Wyo., near Sligo, Colo. In 1916 this field produced 30 bushels per acre. The total precipitation from Nov. 1, 1915, to Aug. 28, 1916, the date the crop was harvested, as shown by a rain guage within 40 rods of the field, was 4¾ inches. Other oat fields, of which there were a dozen or more within a three-mile radius, did not even produce hay. This field, under the writer's direct supervision, was fall plowed to a depth of about six inches and sub-packed. Early in the spring the surface was cultivated. Later, two different cultivations were given to keep the top loose and to destroy all weeds. Seeding was delayed until about thirty days past the usual seeding time in order to permit the firm, moist soil to become warm, and to promote bacterial action before the roots of the plants had greatly reduced the moisture. About half the usual amount of seed was sown. The picture tells the story graphically.

Fall Plowing in California

Fall plowing before the rains should be practiced whenever possible, and the plow should be followed with a subsurface packer or a disc harrow set straight and well weighted. This plan of packing is for the sole purpose of allowing as many as possible of the large cloddings at the bottom of the furrow and permitting the moisture to go down deeply into the soil. Also it serves to gain the assistance of all showers in dissolving and settling the upper portion of the furrow. The surface should be kept loose and free of weeds.

While correct plowing is a vital consideration in the management of the orchard, it is only the first step in preparing the seed bed

"You Can Just See Them Grow"

"Look at 'em!—Planted two years ago, and just see how they've taken hold! When I put them in I wouldn't have believed that blasting the holes instead of digging them would have made them grow like that. But there's the *proof* and it's the kind of proof that looks good to me. Another couple o' years and they'll be bearing. Then I can 'cash in' on my forethought in planting with *dynamite*."

"Am I glad?"

"You *bet* I'm glad that they told me about

HERCULES DYNAMITE

"Try it yourself the next time you plant. I'm not the only man who will tell you it's a good thing. Ask any man who has used dynamite."

"That isn't the whole story either; you can keep your bearing orchards in good shape by blasting between the rows every year or so. The shock of the explosion stirs up the packed soil around the roots and gives them *breathing* space. Your trees will show you quickly enough whether they like it or not; you'll see the difference in a year. They will grow better, and look better. And lusty trees bear the kind of fruit that brings the top notch price on the market."

"Why don't you send to the Hercules Powder Co. for their book, 'Progressive Cultivation'? It tells you all about the use of dynamite on the farm. You can profit by it as I did. If my copy of this book was the last one in the world I wouldn't part with it for a thousand dollars!"

HERCULES POWDER CO.

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San Francisco California

Hercules Powder Company,
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Gentlemen:—Please send me a copy of "Progressive Cultivation." I am interested in dynamite for _____

Name _____

Address _____

Over $100 in Prizes for New Farming Facts!!

The PRIZE CONTEST does not end until May 1, 1919. A number of readers have sent several ideas and suggestions; all will be considered in awarding the prizes. There is no limit to the number of articles which may be contributed by any one subscriber. First prize, $50; second prize, $25; third prize, $15; fourth prize, $10; fifth prize, $5. University of California professors will select the winners.

THINK! Haven't you developed a special method or short cut that might interest the other fellow? Have you something "up your sleeve" about a new crop or machine? Write us about it! Photographs or sketches desirable, but not required.

Write briefly and plainly; give full name and address. Send your letter to Editor, Orchard and Farm, Los Angeles, Cal., and mark it "FOR PRIZE CONTEST."

The Home Flower Garden

By Mrs. E. E. Paquette
1118 Polli Street, Ventura, Cal.

Some Garden Gifts for Christmas

DECEMBER! Goodness, how the time does fly.

We will soon be saying "Merry Christmas," and I think it is really going to be a merry Christmas for most of us. With the war clouds rolling by our fears and troubles seem to fade. Mr. Hoover has opened up his heart and said we could have an extra pound of sugar each. We will soon have the influenza stamped out and every one will be well again. Yes, there will surely be many things to make us feel like saying "Merry Christmas."

Last year I could not seem to feel the Christmas spirit. It was so hard to say "Peace on earth, good will to all," when our boys were lying in the muddy trenches shooting and being shot at. But with a permanent peace on earth assured, the Christmas spirit has taken full possession of me. Did you ever feel when you are unusually happy that you must go to the garden and gather flowers to help express your happiness?

Better Than Words

What wonderful things flowers do express. Has there been a death, which fills our hearts with sympathy that words cannot express? We gather our choicest flowers and send them to help convey the love and sympathy that we feel. We send armfuls of our brightest blossoms to the sweet girl graduate, to the bride, to the mother of the wonderful new born babe. We welcome our friends with flowers and we give them flowers as a parting gift. Whatever the occasion, if our hearts are full, we depend on flowers to help us express our feelings. That is one of the reasons why I think that flowers and plants make the best of presents.

The Christmas Blossoms

And how wonderfully blessed we are here in California; great trees of poinsettias simply ablaze with bloom-sweet peas growing and blossoming in the open garden (that is if you planted them in time) and often our choicest roses are blooming. Just go out in the garden today and look at the great banks of asparagus ferns, the beds of begonias, the hedges of geraniums, and think that not a leaf of fern or bloom of any kind may be had in the eastern and northern States that has not been grown indoors. Then you can truly say—Merry Christmas!

Presents From the Garden

My favorite rose is the General McArthur. I have it always in my room and when the petals begin to fall I spread them on a plate to dry. It is no trouble; just save the petals when you throw away the faded bouquet and be careful that they are spread out in a warm place so that they will dry without losing their color, and will not mildew. When they are dry, put them in a paper box, well covered. At Christmas time I have boxes full of fragrant red-rose petals, that make the daintiest of all sachets. I make little pillows of them for shirtwaist boxes, and little bags for handkerchief boxes. Somewhere in every box that is packed to send away, there is tucked a little bag of these red rose petals.

Any scrap of thin silk-moline or chiffon, a tiny bow of ribbon and a few rose petals, and you have a gift of love. And, Sh-sh—promise not to tell my friends and I will whisper something. Hidden away inside each tiny bag is a bit of cotton holding a few drops of rose perfume.

Appropriate Plants

One of the best plants for the house is the Aspidistra. It will stand heat or cold, drafts or dry air. If it gets dusty you can easily wash it, and the leaves are not easily broken, so if you are going to make a gift of a plant and can get an aspidistra, do so. Ferns are nice, but they are tender. Aspidistra may not be so pretty when you buy it, but it will prove a joy the year round. Have you a bunch of sweet lavender? The dry blossoms make the nicest of sachets. Every one loves sweet lavender, and what woman ever had all the sachets she wanted? If you haven't a lavender growing, buy one and plant it now or plant the seed and have one next year.

Fortunate the woman that has a real English holly in her garden. I have one, and the commonest kind of a present has a dressed-up holiday air if wrapped in white paper, tied with red or green, with a spray of holly tucked in the ribbon.

And the "Trimmin's"

A real "honest-to-goodness," home-made mince pie decorated with a spray of holly and sent to some one who depends on the bakery for dessert is a Christmas present that would make Hoover himself smile with satisfaction.

The dressing for our Christmas turkey, if we are fortunate enough to have one, will be seasoned with sage leaves picked from our garden herb-bed. Or if it is roast pork, or roast fowl, it will be seasoned with a pinch of thyme. If you have never tried growing your own herbs, get some small plants and set them out now. I pick the leaves carefully, dry them, and pack them in a dry place. They are so much more satisfactory than the "store varieties."

A Tiny Water-Garden

If you want to give a fern dish and do not feel like buying an expensive fern to put in it, try making a tiny water garden in the dish. Get a small umbrella plant and keep it in water a few days. It will develop "water-roots" and will not need any soil at all; place this in the fern dish and hold it in place by piling small, fancy pebbles around the roots. Then get a few sprigs of "water parrot's feather." This may be had at most nurseries, and at all fish stores. Put a pebble on the root end of each spray, and fill the dish half full of water.

A small celluloid swan in the water or a bird perched on the dish with his feet held in place with art wax, adds interest to the gift. I also put a glass frog in the water and place an iris or a spray of tall, dainty flowers in the frog. A beautiful inexpensive gift may be made with a little care and ingenuity.

Hang mistletoe in your doorways, put holly on your gifts, and give, give, GIVE poinsettias Merry Christmas to ALL!

Pretty Costumes

Selected by Isabel Sinclair

These costumes are all carefully chosen with a view to their adaptability to the needs of the home dressmaker. None is elaborate or complex and all can easily be made from the patterns provided by this department. To get any of the patterns send ten cents in silver or stamps to Pattern Departemnt, Orchard and Farm, Examiner Building, Los Angeles.

2660—Girl's Dress

Cut in 4 sizes: 8, 10, 12 and 14 years. Size 12 requires 4¼ yards of 40-inch material. Price, 10 cents.

2360—Lady's Dress

Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. Size 36 requires 8 yards of 36-inch material. The skirt measures about 2½ yards at the lower edge, with plaits drawn out. Price, 10 cents.

2661—Lady's Dress

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 4⅝ yards of 44-inch material. Width of skirt at lower edge is about 2 yards. Price, 10 cents.

2646—A Good Junior Suit

Cut in 3 sizes: 12, 14 and 16 years. Size 14 requires 4¾ yards of 44-inch material. Price, 10 cents.

2278—A Set of Pretty Bags

The pattern supplies each of the three styles illustrated and cut in one size. Each one requires 1 yard of 27-inch material. Price, 10 cents.

2495—A Good "Service" Uniform

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6⅞ yards of 36-inch material. The dress measures about 2¾ yards at the foot. Price, 10 cents.

2246—Lady's Dressing Sack

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 36 requires 3¾ yards of 36-inch material. Price, 10 cents.

2662—Child's Night Drawers

Cut in 6 sizes: 2, 4, 6, 8, 10 and 12 years. Size 6 will require 3⅝ yards of 36-inch material. Price, 10 cents.

2674—Lady's Apron

Cut in 4 sizes: Small, 32-34; medium 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium will require 3⅛ yards of 36-inch material. Price, 10 cents.

Catalogue Notice

Send 10c in silver or stamps for our up-to-date fall and winter, 1918-1919, catalogue, containing 550 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking, also some points for the needle, illustrating thirty of the various simple stitches, all valuable hints to the home dressmaker.

Use Coupon in Ordering Pattern

Herewith find ..... cents for which send me the following patterns:

Pattern No..... Size.....

Pattern No ..... Size.....

Pattern No ..... Size.....

Be sure to give number and size. Send orders for patterns to ORCHARD AND FARM, "Examiner" Building, Eleventh and Broadway, Los Angeles. Be sure to sign your full name and address below

Mango Experiment

At Santa Monica

A THREE year old mango tree, imported from India, and set out by C. E. Hardin of Santa Monica, blossomed profusely last spring, much of the fruit setting satisfactorily. It recently developed its crop, which consisted of more than two dozen mangoes. At one stage they ranged in size from that of a hen's egg to that of a rifle ball. The test of their quality and flavor was very satisfactory.

The mango is known as the apple of the tropics and is generally recognized as one of the world's most delicious fruits. A third of a century will cover the history of this fruit in Southern California. One of the first trees to be planted was at Hollywood. The seed came from Guatemala. This tree is a heavy producer, but the fruit is of poor quality and only little of it ripens. Later plant-

The Young Mango
As it appeared when the fruits were ripening.

ings at Sierra Madre and Sherman were attended with better results. Mr. Hardin's experiment is intended to determine the commercial possibilities of the fruit in Southern California.

Indian mangoes produce satisfactorily in Florida, the ripe fruit commanding a price of $3 per dozen on the New York market. In India the tree attains a height of seventy feet and it is not unusual for one tree to yield $150 worth of fruit in a single season. The fruit varies in shape and size, but four pound specimens are not rare. Mangoes of the better varieties are free from fiber, but the ordinary seedling is tough and has the flavor of turpentine. The leaves of the tree are alternately pink, red and green, and when mature are a foot in length and rather narrow.

The Santa Monica experimenter is inclined to believe that it is possible to develop a hardy variety that will flower early and ripen its fruit during the fall, before cool weather retards maturity—C. B. Irvine, Santa Monica, Cal

Castor Beans $4.50 a Bushel

An increase of $1 a bushel over the contract price of $3.50 a bushel offered farmers in southern States last spring for castor beans, oil from which is used for airplane engines, is announced by the War Department. With the harvesting of the crop the government found that the old price did not provide sufficient profit to the growers.

Canned pumpkin and squash can be converted into a variety of creamed or scalloped dishes or used for [illegible] and pie filling. Don't [illegible] these vegetables out to freeze

Raynster

Look for this Label in your Raynster

A Label That Defies Weather

The Raynster Label means the best in weather-proof clothing. It is the identifying mark on a complete line of raincoats for men, women, boys and girls—heavy rubber surfaced coats for outdoor workers, extremely dainty silk coats for women and girls, or fine imported cloth coats—suitable for overcoats or ulsters. These coats do double duty, they protect against rain or cold.

Be sure the Raynster Label is in the coat. That is the sign of full value for your money. In a garment showing the Raynster Label there is no question about materials or workmanship. It is the signature of quality. Look for the Raynster Label when you want a reliable raincoat.

Get a Raynster today. It is good insurance of health and clothing to provide a Raynster for each member of your family.

If you wish, we will send you the Style Book showing many Raynster models. Drop us a postal.

United States Rubber Company
Clothing Division
New York and Boston

The Red Cross Man

By Jeanne Judson

The Red Cross man was here today,
He seems to know some magic way,
Of being everywhere;
In Paris when a chap is broke,
He passes out a Yankee smoke,
And at the front he's there.

He gives us something hot to drink,
He seems to want to make us think,
We're happy and at ease;
He keeps as busy as can be,
Just working for my mates and me,
His method sure does please.

And though he doesn't tote a gun,
We know he's with us everyone,
Till duty sets us free;
His wheeled canteen is far more fair
Than any lobster palace rare,
We drink his health in tea.

Ornamentals and Fruit Trees

CALIFORNIA NURSERY COMPANY VERIFIED VARIETIES NILES, CAL.

Catalog Sent FREE

We are offering this season a magnificent stock of fruit and ornamental trees, climbing plants, shrubs, vines and roses.

We have the largest experimental orchard of verified and tried varieties of fruit trees true to name of any privately owned orchard in the country and it is from this reliable source that we secure our buds and thus can vouch for the pedigree of our trees.

Write to us about planting plans, giving list of varieties wanted. We will furnish you with an estimate of the cost, together with valuable suggestions.

California Nursery Co. Estab. 1865
P. O. BOX 405 NILES, CAL.

THOUSANDS of FLOWERS

From Spring to Fall!

Flowering shrubs, the kind that bloom the first year, and every year afterward, present the simplest and most effective method of beautifying the home grounds. To make it easy for you—for every reader of Orchard and Farm—to do this, we have made up a collection of Hardy Flowering shrubs of extreme beauty and rapid growth.

Eight Flowering Shrubs Postpaid to Your Mailbox

Our Big Collection is carefully selected, and contains only those shrubs that have proven their worth under all conditions of soil and climate to be found on the Coast. This collection bears flowers of many colors, from earliest spring, through summer and fall, and to the very edge of winter. There is a variety also of leaf coloring, together with bright berries that cling through the winter.

Nine Months of Beautiful Flowers In Every Year

Beginning in early spring, just as the snow departs, when the **Cornus** opens its great white flowers, there is a constant procession of changing flowers clear up to late fall, when the **Roses of Sharon** are ablaze with gorgeous coloring.

Our 8 Shrub Collection

is composed of one-year-old plants of good size, cut back to about a foot in height, the best size to plant for enduring results.

1 Cornus Florida Large white flowers, measuring 3 to 3½ inches across appear very early in the spring, even before the snow is gone, and continue many weeks. The red berries which follow remain through the winter. Foliage red and gold in the fall.

2 Japanese Candleberry Follows Cornus with a mass of tiny yellow flowers. Its brilliant berries also remain through the winter, and have a high value as a natural dye.

1 Snowball Hydrangea Masses of stately white flowers are borne in such profusion as to resemble clumps of snow, and almost cover the foliage. Early to middle summer.

1 Deatzia Dainty, compound foliage. White or rose-white tassel shape flowers are borne thickly, in wreaths, along the slender, drooping branches. Flowers in June, but the shrub is beautiful all summer.

1 Virginia Creeper A very persistent climbing vine, clinging to wood, brick, stone or stucco. The closely overlapping leaves make cool shade for the porch, and are resplendent with colors galore, in fall and winter.

2 Roses of Sharon Of rapid growth, quickly attaining a height of twelve feet. It bears masses of brightly colored flowers through late fall when so few other flowers are in bloom.

Our 8 Shrub Offer

This wonderful collection of eight shrubs and flowers will be mailed postpaid, including one year's subscription, new or renewal, for 75c, or including three years' subscription for $1.25. Add hundreds of dollars to the value of your home by improving its appearance. Even if your own subscription does not expire for several months, you may take advantage of this timely offer now and the subscription will be extended from date of expiration.

Send the Coupon Now, TODAY

Orchard and Farm,
Examiner Bldg., Los Angeles, Cal.

Enclosed find 75c for one year's subscription to Orchard and Farm (new or renewal) and include the eight flower shrubs postpaid by return mail.

Name .....

Address .....

R. F. D. ..... Box .....

How to Breed Rabbits

(Continued from Page 11)

an entire litter, and consequently they get a fine start towards perfection in size.

A perfect New Zealand should have scarcely any white on any part of its body, but should be a beautiful, reddish buff, shading into a creamy red on the under part of body; the ring of white so prominent in most members of this breed is being bred off entirely and no doubt in the future we shall have a solid colored rabbit.

Please remember that I have described "perfection" and don't be discouraged if you look at your rabbits and do not find it. Rather make up your mind to breed carefully so as to produce perfection; the eating quality will be the same, and, in addition, you will have a nice looking bunch of youngsters that will be a joy to behold. Moreover you will probably raise occasionally a high priced animal that will more than repay you for your care and expense.

Breeding the Flemish Giants

The Flemish Giants have been bred for a number of years principally for size; consequently they have become mixed with different large breeds regardless of color. Recently, however, it was discovered that a beautiful blueish, steel-gray shade could be bred quite "true." It is a delightful improvement and attention is now being paid not only to the production of size, but color as well. Remember, the doe is chosen for size and the buck for color. One will find in an ordinary litter of Flemish rabbits some black, some so-called grays and some of the blue, steel-grays.

For the steel-grays, however, a fine, large gray doe is used with a steel-gray buck, as near perfect as can be obtained. The doe should not be allowed to nurse more than six young, four being preferred, and a nurse doe should be used for the remainder of the litter. The standard for the Flemish is: Bucks, 13 pounds; does, 13 and over. The head should be large and well shaped, and of the same color as the body, which should be long and powerful, with broad hindquarters. At four months they should weigh eight to nine pounds, at six months, 10 to 11 pounds, and as much more as possible. They do not complete their growth until they are fifteen months of age; consequently, a special show class is arranged by some of the associations for individuals six to eight months old and the junior class includes animals up to eight months of age instead of six as in other breeds. Flemish rabbits have reached, in rare cases, a weight of twenty-one pounds, but twelve to fifteen is the average.

In the breeding of all animals the laws are the same; like begets like, and to produce a perfect strain one must be very careful how one changes the blood of his stock. The process known as "line breeding" (father to daughter and mother to son) gives the best results so far known. "Inbreeding" (with brother and sister) is apt to produce weak stock in every way and should be practiced only by expert breeders who are striving for certain characteristics. After line breeding for three or four generations, one can introduce new blood, being careful, however, that there are no defects in the new stock that one has been trying to eradicate in his own strain. These defects may not show in the individuals purchased; consequently a careful investigation of family or pedigree is desirable. Most breeders agree that it is best to introduce new blood through the female.

"Outbreeding" means the introducing of entirely new blood and therefore must be done very judiciously if one is breeding for perfection.

I must add that one service with the buck is sufficient; it is a mistake to leave animals together for a long time; it is bad for both the doe and the buck.

FARMERS CLASSIFIED MARKET PLACE

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AUTO ACCESSORIES, SUPPLIES

FORDS START EASY IN COLD WEATHER with our new 1919 carburetors; 34 miles per gallon; use cheapest gasoline, distillate or half kerosene; increased power; styles for any motor; very slow on Money back guarantee; 30 days' trial. Air-Friction Attach it yourself. BIG profits to agents. Carburetor Co., 325 Madison, Dayton, Ohio.

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U. S. IRON WORKS, SEATTLE, WASH.

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RALPH WALDO ELDEN,
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HARDY Hybrid Alfalfa. Wonderful grower. Getting thicker and better with age. Permanent. Quality unexcelled. Write for proof. J. L. Lawson, San Jose, Calif.

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RASPBERRY roots with strong healthy canes; summer and fall bearing variety, best quality. Planted now will bear next summer. 5 roots for $1.00. Not less than 50 shipped. John Eadie, P. O. Box 108, Fairfax, Calif.

NURSERYMEN. Please send catalogues and price lists of fruit trees, seeds. Harry Allen, Lincoln Calif.

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THE FAMILY BOOKLET—A treatise on the cause of our diseases; how to foresee and prevent them.
This is a scientific and interesting volume in condensed form and will be of great help to the sick as well as to the healthy.
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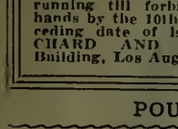
Our rate for classified advertisements is 3 cents per word for each insertion. Advertisements must reach us before the 21st of each month. Changes of copy of advertisements running till forbid must be in our hands by the 10th of each month preceding date of issue. Address ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

POULTRY

Help Feed the World
Raise Baby Chicks



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EGGS, MEAT, GOING HIGHER! GREAT SHORTAGE. Big profit for years sure on really heavy strains. Our 200-290 Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, Orpingtons; ducks, turkeys are more profitable now than ever, clearing $5 yearly. Some best Government trapnested hens. 280-283 eggs. Hundreds breeders; laying, younger pullets; thousand chicks weekly; reasonable. CHICKS SCARCE. Few open dates. Winter, spring delivery, last year's prices. W. Beeson, Pasadena, Calif.

BABY CHICKS. We are getting ready, are you? Write for our interesting circular and prices describing our R. I. Reds, Barred and White Rocks, Black Minorcas, White, Brown and Buff Leghorns. We will not load you up on hot air, false claims and humbug, but tell you straight and try to warrant your good will for future dealings. 12,000 weekly capacity enables us to fill large as well as small orders promptly, if you will book your order early. Prices and quality will both please you. Why not get acquainted? A postal will do it. The Mission Hatchery, Box 7, Campbell, Calif.

BABY chicks for sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere west of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write

MUST HATCH INCUBATOR COMPANY,
432 Seventh St., Petaluma, Calif.

FOR SALE—Take advantage of this special offer of a year's subscription to the California Poultry Journal, the leader in California, or a one year's subscription to the Northwest Poultry Journal, the leader in the Northwest, including one year's (new or renewal) subscription to Orchard and Farm for only seventy-five cents, or both poultry journals for one year and Orchard and Farm one year for one dollar. Mail your order today to Orchard and Farm, Los Angeles, Cal.

SLY'S REDS

STANDARD BRED RHODE ISLAND REDS. Some of California's best. Now booking orders for early delivery of hatching eggs. Six grand matings. Catalog free. Albert Sly, 1642 Middleton place, Los Angeles, Calif.

STRONG, vigorous baby chicks from Hoganized stocks, or hatching eggs from same select breeders. These birds are the result of years of culling out for higher eggs production, with high-type males brought in when needed to perpetuate fine egg ability. Hundreds of well-pleased customers can affirm above statement. Write for prices to JOHN C. BARR, Holyrood Ranch, San Gabriel, Cal.

FOR SALE—Two acres of good land, house of 4 rooms and bath, barn, chicken houses with fowls; 5 miles from big town, near school, electric and steam railroad pass property; one mile from station. Everything complete ready to start business. Address L. M., Box 305, Capitola, Calif.

FINEST HATCHERY IN THE WORLD—Baby chicks, Rhode Island Reds and White Leghorns, settings. 100, 1000 hatched right in our $60,000 brick and concrete hatchery from our quality heavy layers; reasonable prices; stock hatching eggs. Pebbleside Poultry Farm, Sunnyvale, Cal.

FOR SALE—Early hatched cockerels. White Leghorns. Carefully bred for 15 years for vigor, heavy laying and standard requirements. Trapnested and Hoganized. McFarlane strain. A. Worel, R. D. 3, Napa, Cal.

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CHIX—Barred and White Rocks, Reds, Orpingtons, Anconas, Minorcas; Buff, White and Brown Leghorns; breeding cockerels. Enoch Crews, Seabright, Cal.

MODEL POULTRY FARM, White Leghorn Specialists. Our fifteenth year; baby chicks and hatching eggs for sale. Also first-class breeding cockerels. Our prices are right. W. C. Smith, Prop., Corning, Cal.

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"EASTMAN'S BRED-TO-LAY" Hoganized trapnested Barred Rocks. Cockerels, eggs. Airedale puppies. Fairmead Poultry Farm, Fairmead, Cal.

EGGS from pure-bred Buff Orpingtons, $1.50 per setting. Mrs. J. R. Talbot, Box 62, Graton, Calif.

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POULTRY GREENS GROWING REVOLUTIONIZED —Dairy, rabbit, even table relish as well, by GIANT MARROW CABBAGE, swiftest winter-growing necessity for Californians. Plant quickly. Iiss Experiment Station record of EIGHTY EDIBLE TONS PER ACRE. Is earlier, hardier, richer than kale; its tender "marrow" laden, four to seven-inch diametered trunks (sliced) are greedily eaten by all stock without waste. Occasional giants grow 10 feet high. Had 40 inches long, 17 inch wide leaves, stretching up 7 feet, 70 days from transplanting. It never "heads." Oakland customer reports 8-foot specimens with phenomenal leaf yield—the neighborhood marvel. GUARANTEED PEDIGREED SEEDS, 500, 25c; five such packets, $1.00; full acre supply, $3.00 by insured mail. Photos, cultural suggestions FREE.

"Golden Potlatch" or "Big Dinner" bush pea; some 1917 roots bore three crops, "wintering over" in open ground near Canada line. Largest, greenest, tenderest, sweetest grown. Don't "can" them. Ripe seeds thoroughly soaked, cooked, garnished, equal "canned." Large packets, 15c; eight for $1.00.

RAREST BEANS, bush and pole, for Coast planting. A better pole variety than "Kentucky Wonder" or your money back. Packet, 15c, prepaid.

"Purple Perfection Potato;" salad specialty; frost-proof, super-early; demands CONSTANT GROWTH, assuring two crops yearly for Californians without "keeping over" worrying. Seven fine tubers on a single underground fruiting stem this year. One California customer reports the second 1918 crop of four bushels from sample sent in letter. Small sample, 10c; pound, 40c; three pounds, insured mail, $1.00.

If it's "Different" PRACTICAL novelty suggestions you want, address E. E. Martin, Guaranteeing Seedsman, R-4, Charleston, Wash. (LIMITED SUPPLIES, NEIGHBOR.)

WELL, WELL—Here the White Plumage Poultry Farm and Hatchery is coming again, ready for another season. Our S. C. White Leghorn breeding stock is better than at any time during our 10 years of breeding. Therefore we can produce better and stronger baby chicks. Why not do your bit and help feed the world? It is none too early to place your order with us today. We guarantee safe delivery. Price, $15 per 100, $70 per 500 and $130 per 1000. H. A. Schlotthauer, Exeter, Calif. Route A, Box 148.

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FOR SALE—Golden Bronze turkeys. Big bones breeding toms of America's best strain. Eggs in season. M. M. Reiman, Planada, Calif.

MAMMOTH Bronze turkey toms and hens for sale. Order now before prices advance. Also Collie dogs for herding. John G. Mce, St. Helena, Calif.

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WANTED—1000 poultry men to try the new Perfection automatic poultry fountain; none better; free circular. John Imschweiler, Inglewood, Cal.

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THE "Billiken Brand" of Chester Whites. It is now time to start breeding for the coming spring litters. I have some fine yearling boars that will produce for you some fine growthy pigs. Have but 10 left. Am accepting orders for December delivery for yearling gilts bred for an early March farrow. None better anywhere and priced very reasonable. Weaned pigs, both sexes, almost any time of the year. If you want to improve your herd and realize results, get started with some of this stock. C. B. Cunningham, Mills, Calif.

LIVESTOCK—Sheep, Milch Goats

D. E. KELLIHER—Importer and breeder of Hampshire sheep, Eugene, California, offers for sale a choice lot of yearling Hampshire rams sired by Walnut Hall and Rutterfield rams purchased at Salt Lake August, 1916. Inspection and correspondence invited.

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START right. Registered Duroc Jersey weanlings. Three for $35. Satisfaction guaranteed. Red Rock Ranch, Glen Ellen, Cal.

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We want a married man who will live on our property (good house, barn and windmill), who will plant trees for us and farm between the trees for himself. For details apply to BERKELEY SECURITIES COMPANY, 218 First National Bank Bldg., Berkeley, Calif.

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BE A CHIROPRACTIC DOCTOR—7000 now practicing, new method of curing and preventing diseases. Catalogue free. Dr. Charles A. Cale, president, Los Angeles College of Chiropractic, 931 South Hill street, Los Angeles, Cal.

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SAFETY RAZOR BLADES RE-EDGED, 30 cents dozen. Send for mailing envelope. Howard's, Box 93, Los Gatos, Cal.

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ABSOLUTELY must be sold and this price will sell it. A going dairy and alfalfa ranch, adjoining very prosperous San Joaquin Valley City (160 acres) about half in alfalfa. Good two story eight-room house, sanitary milk house, barns, shade and fruit trees, grapes, nuts and berries. Complete outfit of farming implements, wagon, etc. Irrigating water supplied by most dependable canal company in county. Good well, with engine and large tank, for stock and domestic purposes. This ranch can, with some expense, be admirably subdivided. Price $24,000, half cash, balance in 3, 5, 7 and 9 years. A positive good buy. The People's Real Estate Co., Roberts Bldg., Los Angeles, Cal.

EL DORADO Co. Ranch. 640 acres, all under fence, 300 acres under cultivation, balance timber and grazing; 130 acres seeded to grain; 100 acres creek bottom land. Can nearly all be cultivated when cleared. A fine hog or stock ranch. Two sets of buildings, houses 8 rooms each, barns and outbuildings; 8 head of horses, 20 head of cattle, 30 sheep, 90 goats, all farming machinery. Things too numerous to mention. Price $30.00 per acre. Terms on part. No lease or trade. Owner. Address Box 824, Orchard and Farm.

DO YOU WANT TO SELL, TRADE OR BUY a farm, ranch, raw land, city or business property, automobiles, factory, patent, stock, bonds, mining property, etc.? If you have something to sell in any State, write, inclosing 10 cents, for our big magazine of investments, exchanges and buyers and our special proposition. Send full description and lowest price of your property. Address the World's Mirror, Beaumont, Tex.

ORANGE AND LEMON GROVE for sale—20 acres 4-year-old Eureka lemons and 10 acres 5-year-old oranges and lemons. Lots of water. Nothing finer in California. Will be a big crop this season. Must sell quick to settle up an estate. No agents. No exchanges. Address C. W. Mount, 522 Higgins Bldg., Los Angeles.

FOR SALE—2 acres of good land, house of 4 rooms and bath, barn, chicken houses with fowls. 5 miles from big town, near school, electric and steam railroad pass property, one mile from station. Everything complete ready to start business. Address L. M. Box 305, Capitola, Cal.

FOR SALE—9-acre alfalfa ranch. Good house, barn, fruit of all kinds, $4800; part cash, balance to suit. Write or see owner, D. R. Wyatt, Mountain View avenue, Riverside, Calif.

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BARGAINS—Bargains. Send for free magazine of farm, business, wild land, exchanges, any kind, anywhere. Western Sales Agency, Minneapolis, Minn.

WE ARE AGENTS for the best land in South San Joaquin Irrigation District on the easiest of terms. Address Ripon Nursery Co., Ripon, Cal.

WANTED—To hear from owner of good farm for sale; state cash price, full description. D. F. Bush, Minneapolis, Minn.

REAL ESTATE FOR EXCHANGE

FOR EXCHANGE—I have a fine seven-room two-story house, nice residence section of Berkeley, with large sleeping deck, fireplace, hardwood floor in living room; kitchen finished in white enamel; fine bathroom; clinker brick exterior finish and in yard there is garage, workshop, children's playhouse. Street work, sidewalks, sewer, macadamized street, gas and electricity are in. Two blocks from Key Route and S. P. Electric trains to San Francisco and street car to Oakland. I will exchange above house for an improved ranch. Nell E. Munro, First National Bank Bldg., Berkeley, Calif.

TO EXCHANGE AT A BARGAIN—10 acres good land, fenced; free soil; near Galt, Sacramento County, Calif.; $800 loan; would exchange for a smaller place, clear, or small loan. Also have lot on High street, Melrose, Oakland; price $350. Address owner, Route A, Box 245A, Acampo, Calif.

WE EXCHANGE Real Estate—Johnson & Temple, San Jose, Cal.

COUNTRY PROPERTY FOR SALE

FOR SALE AT A BARGAIN—Four acres between First and Second streets, Paso Robles, Calif., $400 worth of improvements. Price for December, to get money quickly, $1200. Carl Storla and Miss Maggie Storla.

FARMS FOR RENT.

TO LEASE.

20-acre irrigated farm, good four-room house, windmill and tankhouse; good barn.
BERKELEY SECURITIES COMPANY, 218 First National Bank Bldg., Berkeley, Calif.

FARMS FOR SALE

FOR SALE—20-acre improved farm, near Turlock, Cal. Good arrangements for chickens, alfalfa Thomson Seedless and home orchard. A. C. M. Christofferson, R. F. D. Turlock, Calif.

FARMS WANTED

WANTED TO hear from owner of farm or unimproved land for sale. O. K. HAWLEY, Baldwin, Wisconsin.

WANTED—To hear from owner of good farm for sale. State cash price, full description. D. F. Bush, Minneapolis, Minn.

FARM LANDS, HOMESTEADS

160-ACRE homestead relinquishment, within 10 miles Twin Falls, Idaho, $250. Good soil, lays fine. Box 71, Woodburn, Ore.

REAL ESTATE—Sale or Exchange

I HAVE 10 acres of land in Tulare County, Terra Bella District, clear title. I would like to trade on some larger acreage, the ten as first payment. Alfalfa and hog land preferable. J. E. Winters, Box 81, Taft, Calif.

TO EXCHANGE—My $700 equity in fine 30 acre irrigated farm for auto. T. Liermann, Los Molinos, Calif.

MONEY TO LOAN—Real Estate

MONEY TO LOAN

We always have money to loan on improved farm lands. SECURITY BOND AND MORTGAGE COMPANY, First Nat[illegible] Bank Bldg., Berkeley, Calif.

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